GLEANINGS IN BEE CULTURE

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EDITORIAL

By E. R. ROOT.

A PERMANENT BUILDING FOR BEE-EXHIBITS AT THE MICHIGAN STATE FAIR.

THERE seems to be a fair prospect that the Michigan bee-keepers will have a permanent building erected on the State fairgrounds to exhibit the products of the apiary; but before this can be made possible it is important that Michigan bee-keepers write at once to Secretary E. B. Tyrrell, Detroit. Mich., of the Michigan Bee-keepers' Association, certifying a desire for such a building, and that they will furnish an exhibit of some sort.

THE FRONTISPIECE OF QUEEN-CELLS GREATLY ENLARGED.

THE frontispiece of our cover shows a couple of natural queen-cells that are about as perfect specimens as one often sees. Of course, the reader recognizes that they are enlarged to nearly twice the natural size. The purpose of increasing the size was to show the indentations on the surface of the cells; for it appears that the bees are not quite able to do away with the hexagonal comb structure. When, therefore, they build a cradle for their royal babies those cradles show the bases of cells.

Incidentally it may be remarked that these very corrugations or indentations serve to strengthen materially the cradle walls; and, for the purpose of modern commercial queen-rearing, it is of no small importance when we consider that these cells have to be handled more or less. But the queen-breeder nowadays goes still further. He has every cell attached to a wooden cup, and when handling them he takes hold of the wood only.

It has been said that, when the bees by mistake put a male larva or egg in one of their royal cradles, they make the surface of the cell wall perfectly smooth; but the writer has never been able to find a case of this kind in his experience.

THE EXTENT OF EUROPEAN (BLACK) BROOD IN THE UNITED STATES.

THE following letter, just from the Bureau of Entomology, in reference to the spread of European foul brood in the United States, will explain:

UNITED STATES DEPARTMENT OF AGRICULTURE,
Washington, D. C., July 14.

Dear Mr. Root:—Your letter asking concerning the spread of European foul brood is received. It would certainly appear from our records that this disease is spreading to new localities. Of course it may have existed in some of these unknown for years, but this hardly seems possible. In 1897, when it broke out in New York State, it was not recognized elsewhere in the United States, but now it is found in Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Maryland, Virginia, West Virginia, Ohio, Michigan, Indiana, Kentucky, Illinois, and probably on west across the Mississippi River. It is also found in Western Mississippi and in the San Joaquin Valley, California, with another small outbreak in the West this year, reported to be in only one apiary.

I doubt whether these cases all spread from the New York outbreak, for it seems probable that that outbreak was due to buying colonies in a southern State. At any rate, the situation is a serious one; and wherever no inspection is provided, steps should be taken to get this disease under control. The history of the New York outbreak shows what this disease can do, and the good results of the inspection in that State should point out to bee-keepers the proper steps to take.

European foul brood seems to spread more rapidly in an apiary than American foul brood. It is probably not more difficult to cure. If there is any difference, European foul brood responds more readily to treatment. The chief difficulty is that bee-keepers generally expect to find ropiness in diseased larvæ; and when they do not find it they often attribute the trouble to chilling of the brood or to the so-called "pickled brood." In this way the disease gets a bad start before it is realized that there is a disease present.

There is good reason to believe that in several parts of the country the bee industry is very poorly developed simply because disease has killed off most of the bees, and it has been attributed to "bad luck." This condition should not continue, and every person interested in bees should learn to look for brood diseases whenever any thing goes wrong.

I should be glad to have you repeat in GLEANINGS that the Bureau of Entomology is anxious to get samples of both American foul brood and European foul brood from every locality where they exist. We hope to be able to use all this information by sending it to State legislatures. It is important that the distribution of these diseases be known.

E. F. PHILLIPS,
In Charge of Apiculture.

We hope our readers will not send any more suspected samples of brood to Medina, but to Dr. Phillips.

TREATING AN APIARY INFECTED WITH EUROPEAN OR BLACK BROOD; THE BALDRICH PLAN OF SAVING ALL GOOD BROOD.

ON page 399, July 1, we made the statement that if black or European foul brood should once get started in a yard of ours we would treat the whole apiary, irrespective of whether the individual colonies showed disease or not, by putting every brood-nest on the top of another body containing frames of foundation with a queen-excluding honey-board between the two. The idea of this

was to eliminate any possibility of disease lurking in the combs. We meant, of course, that we would prrctice the shake-out plan, putting the queen below.

Quite a number have written, asking what we meant, saying they would suppose, of course, that black brood could be carried down through the zinc back into the new combs built from foundation.

Confession is good for the soul; and we acknowledge that, when we used the term "a queen-excluder," in the last paragraph, first column, on page 399, we meant a *bee-escape board*, for we had in mind a modification of the Baldridge treatment—a treatment that saves all the good brood in an affected colony.

The exact plan, in brief, as Mr. Baldridge gave it in 1894, is this: A frame of brood and bees is taken from some healthy colony, placed in an empty hive, and the remaining space on both sides is filled out with frames of foundation. This hive is put on the stand of the diseased colony to be treated, which is moved to one side with the entrance pointing in the same direction, and as near as it is possible to have it. A long, tapering, perforated tube attached to the entrance of the old colony closes out all means of ingress and exit except through this tube. It is, in fact, a bee-escape. The queen of the parent colony is caged for 24 hours, when she is put on to the frame of brood in the hive put on the old stand. The bees in the parent colony will gradually abandon the old hive through the bee-escape and enter the new; so also the hatched brood that is not affected with the disease.

We understand that Mr. Baldridge claimed he not only cured foul-broody colonies in this way, but saved all the good brood. But many believed at the time that there would be danger, from the constant accessions of the diseased colony into the new hive, of foul brood being carried into the newly drawn combs, consequently the plan was not very generally adopted.

The main thought we had was treating *all* colonies, whether diseased or not, and melting up all the combs in the yard after all the brood had hatched out. The plan was all right—that is, providing the Baldridge method is effective, and it certainly would do no harm, and probably eliminate the possibility of disease breaking out in what were apparently healthy colonies; but in view of some protests to the effect that infection might be carried below we would *now* advise administering the McEvoy treatment, using only starters, on all colonies *known* to be diseased, and then treat others on the modified Baldridge plan.

FOUL-BROOD LEGISLATION IN ILLINOIS.

FOR several years back the bee-keepers of Illinois have been trying to amend their present foul-brood law so that it can become effective; but every time they would get a bill well under way before the legislature, some bee-keeper would go before the committee or committees having the matter in charge and make a statement that foul brood is incurable, and that there is no need of legislation; that the people who were back of this movement were either after some fat job or interested in the sale of supplies.

But it appears from the *American Bee Journal* that, during the last session of the legislature, nearly a dozen alleged bee-keepers appeared before the committee and made the statement that the promoters of the bill were manufacturers of bee-hives, and named in particular, C. P. Dadant and A. I. Root; that these manufacturers wished to have a law passed requiring the burning of all colonies and hives so they could sell new hives. It is hardly necessary to deny such a silly charge. In the first place, we understand the bill or law does not compel burning of any colony except "in case the owner of the diseased apiary shall refuse to treat his bees or allow them to be treated as directed by the foul-brood inspector." A similar provision appears in nearly all the laws of the different States.

We may say, further, that we did not even know that any special effort was being made last winter to amend the law in Illinois, although we knew that the law was ineffective. Nowhere in our literature do we advise burning the hives except in a case where there was only one colony in the yard; but after the disease breaks out in several we have always advised scalding out or otherwise disinfecting the hives and using them over again.

Some of these people who are opposing legislation apparently have foul brood in their apiaries, and do not care to be *made* to treat their colonies as they should. No law will ask them to burn the hives unless they refuse to treat infected colonies.

The animus of the opposition is apparent. It can't long hide under the plea that foul brood is incurable, and that manufacturers are working for the amendment because it will make a sale for hives. Both statements are absolutely false.

According to the government officials, European foul brood is scattered all over Illinois. If there is a State in all the Union that needs an effective law at the present time it is our sister State. Next year its bee-keepers should go before the legislature a hundred strong.

IS IT NECESSARY TO DISINFECT HIVES WHEN GIVING THE McEVOY TREATMENT FOR FOUL BROOD?

IN the June issue of the *Canadian Bee Journal* an array of authority has been introduced to show that it is not necessary to burn out or otherwise disinfect hives that have contained foul-broody colonies. Our brother-editor, Jas. J. Hurley, wants to know what is our proof for believing that the disease may be transmitted through the hive.

Some eighteen years ago, when we had foul brood all through our bee-yard, we tried shaking the affected colonies back into the old hives. In most cases where we did this, foul brood reappeared, but not in all of

them. We finally decided that it was safer and better to boil the hives, which we did, at a great expense at that time. After we began that practice, in not a single case did the disease reappear, although we treated some 70 odd after that.

In place of boiling we now consider it much more practical to burn out the inside of the hives by using a little kerosene or gasoline, and touching a match to it. This does not injure the hive in the least, but merely blackens the inside of it, and shows beyond any question that *that* hive has once been treated.

Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*, stated that foul brood could be communicated by means of the hives. One or two Canadians told us some two or three years ago that they had known of a number of cases where the McEvoy treatment had been practiced without disinfecting the hive, and the disease had reappeared. Perhaps some of those Canadians would be willing to write us at this time, giving the general facts in the case.

While we admit that it is possible that foul brood might be communicated through some other means, yet in our own case we hardly think it is probable.

Then it is well to bear in mind that those of us who are giving advice as to how to treat colonies for foul brood should remember that there are often careless and ignorant persons who will fail to carry out our instructions properly; for if combs during the height of the honey-flow be shaken back into the old hive, quantities of new honey will fall out and smear over the inside of the hive.

It is really so little work to burn out the inside of the hive that we believe it is better for the *average* bee-keeper, at least, to *err on the safe side*. If one is afraid of kerosene, let him take a handful of dry straw, put it in the hive, ignite it, and then, when it is blazing well, stir the straw around in the hive so that every portion of it is made to receive a scorching of the flames. This can really be done in almost the time it takes to tell it, and then one has the satisfaction of knowing that *that* hive can not carry the disease. The very fact that the bacteriologist, Dr. White, of our United States government, rather advises disinfection of the hives, leads us to feel that we should give advice that we know is safe.

HONEY-CROP CONDITION FOR 1909 AGAIN; HONEY-DEW AND WHAT TO DO WITH IT.

THERE is increasing evidence to show that this will be a light year for clover and basswood; that is, for the pure article not mixed with honey-dew. It is probable there will be considerable honey-dew and clover mixed, some of it of fair quality.

Weather conditions east of the Mississippi have not been altogether favorable during the honey-producing time of the year. It was too cold, too dry, or too wet, according to locality. Many sections report an abundance of white clover, and alsike was never more promising than it is this year. From some trips we have made through some of the northern States, we should say there was more alsike in bloom this year than we ever saw before; but, apparently, it has not yielded as it should.

In many sections there is reported considerable honey-dew from the hickory and oak. In a good many cases this is mixed with clover and basswood. In some instances there is not enough of this dark stuff in the white honey to affect either its flavor or color; but in some other cases there is so much of it that the entire product will have to be sold as honey-dew honey.

There seems to be quite a shortage of clover and basswood honey in Illinois, and in New York particularly; although there are some sections in each State that report a crop.

Reports from Michigan are very conflicting, showing that some bee-keepers will receive a "bumper yield" of honey, while others will get almost nothing.

In Indiana and Ohio a large amount of honey-dew was gathered. If the aggregate amount of clover and basswood and honey-dew could all be put together, and sold as white honey, the bee-keepers of the northern portions of these two States, at least, would not have much to complain of.

In the extreme East the season is reported good, fair, and bad. In the New England States the yield from clover and basswood has apparently been light.

It is too early yet to get any returns from Wisconsin and Minnesota and Canada; but the indications are good. In some of the southern States a fair yield appears to have been gathered, while in others the season was almost a failure. Missouri and Nebraska appear to have a good clover year, and these two States will help materially to make up the shortage in the East. Colorado will, apparently, have a good alfalfa crop, and the same is true of some of the other western States.

Recent reports from California would raise our estimates of from one-fourth to one-third of a crop to from one-third to one-half of a crop.

The Eastern markets will probably have quite a little Western honey, owing to the general shortage of clover and basswood in most sections. While this will be largely alfalfa, there will probably be some sage from California.

We are getting a good many inquiries as to what to do with this honey-dew, where it predominates in white honey to an extent that would darken its color and impair its flavor. We know of nothing to suggest but to sell it as honey-dew honey to the baking concerns; and it would be unwise to dispose of it for a table honey or even a table honey-dew. Where there is much of this dark stuff in sections, we advise cutting it out and melting it up, selling the honey-dew to the baker, and the wax—well, that always has a ready market. Where there is only a little honey-dew in the white honey, or not enough to impair the color or flavor, it is our opinion that Uncle Sam will let it be sold as honey.

STRAY STRAWS

BY DR. C. C. MILLER

A HERD-BOOK is proposed in Switzerland in which to register pedigreed queens. Those Swiss are bound to keep in the lead.

JOHN SILVER, *Irish Bee Journal*, 117, says that eggs of the same age were "transferred to queen-cell cups at the same time, sealed on the same day, remained side by side in the same hive, and yet there was a difference of two days in hatching."

DELIGHTFUL it is to see our departed countryman, E. L. Pratt, spoken of so highly by Austrian bee-keepers. The official report of the Austrian association says that his discourses when in that country have given a new turn to bee-keeping in Austria.

DR. BRUENNICH (*Bienen-Vater*, 57), says a sting is not always fatal to a queen unless she is stung between the rings of the abdomen. If stung in the thorax it may cripple a leg, the nerve that controls the leg being affected thereby, and that's generally the cause of crippled queens. The colony of such a queen is not likely to do good work. [Dr. Bruennich's statement harmonizes with observations that we have been able to make. —ED.]

CAN BEES fly backward, p. 380? At their regular work you may see nothing of the kind. But set a hive off its stand and put on the stand an empty hive. You will not only plainly see the bees flying backward, but uphill at that—just been trying it.

Later.—Been watching bees at play. Same flying backward uphill. [We have watched the bees, but never have seen them fly backward on an ascending plane. Did you ever see them fly backward on the same plane like a hummingbird?—ED.]

AUSTRIAN bee-keepers, if I understand the thing correctly, changed to a frame so little different from the Langstroth size, because their former deep frame by turning over could become a comparatively shallow one. Ought to have said so before, but didn't know enough. [This puts a new phase on the whole situation. If the Austrian bee-keepers changed to a size that would enable them to use the same frame, hung either way, then we can see some reason *why* they should adopt the size they did. We hereby extend to them our apologies.—ED.]

JOHN WARD, referring to a Straw on page 330, asks: "Where do you buy foundation that comes clear down to the bottom-bar? The light brood that The A. I. Root Co. sell does not." Only the sizes most commonly in use are listed, but you'll have no trouble getting any size you order. If splints are used enough it will be nothing strange if the deeper size is listed. Whether the bottom-bar be plain or split, I suspect it is quite important that the foundation be waxed to the bottom-bar, so the bees will be less likely to gnaw a passage. [Foundation can be bought of any of the manufacturers cut to any size desired.—ED.]

H. E. CROWTHERS' brief mention of five-inch splints, page 426, may lead to a real improvement. If bees gnaw at the splints, they always begin at the bottom. Now, if the splints are not needed at the bottom, and the end of a splint is inside the cluster, may be the bees will not feel it their duty to gnaw it. [This suggestion we consider worthy of further experiments. Apparently five-inch splints would eliminate all trouble. We suggest that some of our subscribers try the short ones under conditions when the bees would usually gnaw a wooden splint. We would also suggest that long and short splints be used in alternation in the same frame. If the long ones are gnawed out from the bottom and the short ones untouched, it would give us a pointer on what the bees will accept.—ED.]

HERE ARE some figures from Russia, *L'Apiculteur*, 472: A worker larva, *at its largest development*, weighs, according to Dr. Dengof, 184 milligrams. That may be better understood if I say it takes 2465 larvæ to weigh a pound. According to Prof. Fischer it takes 3042. As the young bee matures, its weight diminishes; and 4279 bees, as they emerge from the cell, weigh a pound. Yet there is a *little* nourishment in its stomach, and, absolutely empty, it takes 4930 to the pound, after Dengof, and 5532 after Berlepsch. Aft-Tsecelsky it takes 4348 emerging workers, and 2314 drones, to make a pound. Swarming bees weigh 3490 to the pound. An average swarm of 1½ to 2 kilograms (3.3 to 4.4 pounds) contains 12,000 to 16,000 bees, having taken up 16 to 21 ounces of honey. [The figures as to the number of bees in a pound are substantially the same as the figures made some years ago, reported in these columns. Swarms of bees usually weigh more than ordinary bees in a normal condition in a colony.—ED.]

GASTON BONNIER, *Apiculteur*, 204, says the popular notion that bees find their way a long distance because they see so far with the compound eyes is all wrong. A carrier pigeon has some sense by which it finds its way home where sight is impossible; same with a bee. Catch a bee on the flowers, cover its eyes with a coat of blackened collodion, and, when freed, he says, this blind bee will steer straight for home. [Some of these experiments should be verified before we come to any definite conclusion. Perhaps the darkened collodion would shut off all possible vision. If a bee can intuitively go back to its home, we do not understand why it does not do so when taken away from the environment or range of the bee flight to which it has been accustomed; but no; it will make numerous circles to mark all surrounding objects, so that it may distinguish its own home, and these circles constantly enlarge as it takes in all the surroundings. Apparently vision is an important factor in determining a bee's location homeward, but it is probably not the only factor.—ED.]

BEE-KEEPING AMONG THE ROCKIES.

By Wesley Foster, Boulder, Col.

NEW COMB HONEY.

At this writing (July 15) new honey has commenced to be put on the market. The amounts are small, and considerable of the comb was built from baits, so is not very white. It sells rather slowly, as many grocers have old honey which they wish to clean up first. Fancy brings $3.75 to $4.00 per case; No. 1, $3.50; No. 2, $3.00 to $3.25.

TIERING SUPERS.

As a general rule it is best to place the new super over the one next the hive till the second crop of alfalfa blooms. About the middle of July a slackening of the flow occurs; and if a new super is placed under one the bees have about half full they will probably quit work in the one and not start in the other until the flow quickens again.

When the flow slackens, the bees build the comb thinner and make a rough uneven finish. If the super space is contracted at this time, some of this can be avoided. As soon as the second bloom comes, the supers can go on in a more liberal way.

CAREFUL GRADING.

The hardest part of introducing the new grading-rules is persuading the bee-keeper that a strict adherence to the rules means more for his crop. The bee-keeper thinks he is going to lose money if he grades by the rules. A case of No. 2 comb that weighs not less than 12 oz. per section, and all the combs of even and like finish, will sell for more than a case that has combs weighing from 11 to 20 ounces with yellow and white combs all mixed in together. Put dark No. 2 together, and white No. 2 together, and heavy No. 2 in one case, and light No. 2 in another. When packed this way the buyer can judge better what he is getting than if all honey of a given grade is piled promiscuously in a case.

No, Mr. Editor, Dr. Miller and I are not splitting hairs They are straws, and "stray" ones at that. I have seen bottom starters an inch wide that did not curl over, and I have seen them that have, too. I use extra-thin foundation; and when less than a half-inch is used, it is difficult to get it fastened clear across. A ⅝-inch starter would not be much more likely to fall over than a ½-inch; but I find the latter width is enough, and so that is all I use.

Shipping-cases that have an eighth-inch space between the cover and top of the sections are a better protection for the honey than if the sections come up even with the top If the case is stepped on, the cover will bend, but not enough to touch any of the sections.

HINTS ON LOADING CARS OF COMB HONEY.

Most Western honey-producers use the double-tier case; and as that is the only case I have had experience with in loading full cars of honey, my hints will refer to it exclusively.

A clean dry refrigerator car with a smooth floor is the best. A good many refrigerator cars have cleated floors; and, if possible, such cars should be avoided, as it takes so much straw to cover up those cleats and make a smooth level cushion for the cases to rest on. The ends of the car should be tight to prevent any one from getting a case out through the refrigerator. Fruit is stolen that way quite often, so a freight agent told me.

Fifteen to twenty bales of straw will be needed—five or six in each end for the cases to bump against, making a cushion. The bales stand on each end with the smooth side to the cases. It is best to find out how many cases will run the length of the car, and how many across the width. Twenty-four to twenty-six is the usual number for the length and eleven or twelve in width. That makes from 264 to 312 in a tier. From that, one can figure how many tiers it will take, whether extra rows will have to be placed on top, and how many bales of straw will be needed in the ends.

Grain-doors should be secured for the doors, and one nailed in place at the door not used for loading. The most particular work is keeping the cases running even, no rows creeping ahead of others, and every case must go right to its place, with no straw between it and the next case, or there will be trouble. It is always best to have several inches to go on in each row, for cases vary slightly in size, even in the same make of case. When there is not space for the last case in a row (there are usually several rows when a condition of this kind arises), bridging has to be done; and it is a tedious job, which can usually be avoided if care is taken right from the start.

The narrowest part of the car is at the doors, for the grain-doors cut off about two inches at each side, and this has to be figured if the full number of rows runs clear through the car.

The different grades should be piled together and marked on the cover so that the buyer, in unloading, can do it without sorting the cases of different grades while the wagons are waiting to be loaded.

When the car is loaded, sweep off the tops of the cases and throw out all surplus straw.

If a car has the same number of cases in each tier, the agent, when he counts the number in the can, will have no trouble. Usually there are some cases that have to be placed on top of the full tiers, and these should run along the side of the car from end to end, and an inch strip tacked along the edge on top of the lower tier so these few extra rows will not get out of place.

It is well to have several boards in the car to use when walking over the cases, and no muddy feet allowed at all.

GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON, ME' INA, O.

The English Court of Appeals has recently decided a very peculiar case that may affect pure-food laws in this country. A Mrs. Jackson bought of a grocer a can of salmon, which, on eating, caused her death by ptomaine poisoning. Her husband brought action against the grocer and won his case, the court allowing $1000 for the loss of her services, $20 for medical fees, and $150 funeral expenses. There are some foods sold in this country, of very doubtful character. Honey is *not* one of them.

DR. WILEY VINDICATED.

The American Medical Association, with a membership of 65,000, at its recent annual convention passed a resolution strongly condemning the action of the United States government in allowing the use of benzoate of soda as a preservative of human food. This is an overwhelming blow for President Roosevelt's commission of chemists, and a signal vindication for Dr. Wiley.

THE UNCOMPAGHRE IRRIGATION PROJECT.

The great Gunnjson tunnel was completed July 5, when the gangs from both sides of the mountain met in the middle. The work has been an arduous task, even for so experienced a man as Uncle Sam, as the total length of the tunnel is six miles, and large enough to transfer a good-sized river through to another watershed. President Taft will formally open the project in September.

MORE IRRIGATION.

A plan is on foot to ask Congress for a loan of $25,000,000, to be used in assisting more irrigation projects managed by the federal government. At present the funds derived from the sale of lands is not sufficient to finance all the projects for which there is a demand. In comparison with the enormous sums spent on the army and navy this is a small sum, and it ought to be voted without argument. It ought to be understood that the money is returned to the government in ten years, to be used again and again.

THE BEE FLORA OF SPAIN.

The writer has found the book by Senor Pons Fabregues, on the bee flora of Spain, very useful, and it seems clear that Americans who are making a study of our honey-plants would find it valuable. Perhaps it would be well to give some examples.

He mentions a species of geranium which grows in the Pyrenees at an elevation of 5000 feet, which must be a near relative of the alfilaree or alfilarella of the Southwest. It seems to be a first-class honey-plant in every respect, and worthy of introduction. It would probably succeed on some of our mountain ranges. The technical name is *Geranium Pyrenaicum*. The common name is aguja de pastor, or shepherd's needle.

The wide variation of climates in Spain is remarkable. In some parts of the country it is so cool that the heather of Scotland and the heaths of Northern Europe do very well. The *Ericas*, or heaths, which are mentioned as very melliferous, are as follows: *E. ciliaris*, *E. cinerea*, *E. multiflora*, *E. scoparia*, *E. tetralix*, while *E. arborea*, *E. umbellata*, and *E. vagans* are not indicated; but I presume they are not so good. The heather *Calluna vulgaris*, he says, is very melliferous, but remarks the quality is inferior. On the coasts the climate is humid, while on the interior tablelands it is arid and requires irrigation. On the cordillera the winters are very cold, while in the South there are no winters at all, and the orange, lemon, and lime blossoms give forth in early spring an abundance of nectar, producing a honey of exquisite quality and delicious flavor. Really, Spain has all the climates of the United States.

A kind of fireweed is mentioned, *Epilobium spicatum*, as being very melliferous. Senor Pons says it is useful in salads, so it is not exactly a weed. It is a perennial, and is common in woods and shrubberies. Its period of flowering is between June and August. Evidently we could introduce this one.

Mr. Doolittle has always sung the praises of the teasel; but I doubt if he has ever heard of the *Dipsacus sylvestris*, or bush teasel, which this author praises very highly. It seems to be as good as the fuller's teasel.

Borage is spoken of as very melliferous; but as an offset he says the honey produces dysentery in bees if wintered on it. This will be news to many.

Spain is rich in labiate plants such as peppermints, lavenders, marjorams, thymes, bee balms, rosemaries, salvias, catnips, nettles, wormwoods, etc. Several species of each are mentioned. A kind of carpet-weed is mentioned as being good for bees, namely, *Lippia citriodora*. This one ought to interest bee-keepers in Florida and California.

Buckwheat is mentioned as being much cultivated in certain parts; but the quality of the honey is classed as inferior. The date palm, of which there are a number of groves in Southern Spain, is classed as a fair honey-yielder. In my opinion there are few better, so Florida, Texas, Arizona, and California ought to encourage date culture. In my opinion the date will grow wherever the orange grows, and where it is too arid for citrus fruits. It will also stand more cold than the orange. The American agave is highly spoken of as a honey-plant. There are few better anywhere.

FOUL BROOD SPREAD BY CRACKER-BOX BEE-MEN.

It will take years of hard work and thousands of dollars to wipe out the foul brood that is being spread all over the southern half of our State by the cracker-box and soap-box bee-keepers here. I believe I am the only man in the county who keeps a hospital hive and looks for the disease and tries to destroy it. A thorough search every week or ten days is the only way I can keep my own clean, and you know that takes some work. C. B. PALMER.

Bradshaw, Neb., July 9.

NOTES FROM CANADA

By R. F. Holtermann.

This season I am running about 350 colonies of bees in three apiaries with no help but some one to smoke the bees for me, and I am getting a very fair crop too. I expect to hire help to extract, anticipating a buckwheat flow.

THE HONEY CROP.

At this date, July 12, the honey crop in Canada can scarcely be estimated. Take the Dominion as a whole, owing to the lack of rainfall in many sections we do not anticipate a bumper crop, and yet there will, no doubt, be sufficient honey to supply fairly well our present home market. In at least a considerable number of sections there has been a good yield from clover, and it is quite possible that we may have more honey from thistle and basswood.

WEDGES UNDER THE BROOD-CHAMBER.

I am a strong advocate of the wedges designed by S. T. Pettit. They are ⅞ in. deep at the thickest part; and, placed between the bottom-board and brood-chamber at the sides, they make the entrance to the hive ⅞ in. deeper than the width of the hive. I have often stated that it has not been my experience that the bees build comb between the bottom-bars of the frames and the bottom of the hives. This year, after some ten years' experience, I for the first time find that many colonies have built comb under the bottom-bars.

HONEY-DEW.

At the Haldimand convention a member stated that the bees were working freely on plum-trees, although there were no blossoms. Some one suggested aphides (plant lice). The reply was that this could not be, as the leaves were perfectly bright and clean. Upon my return to my own apiary I found the bees working on the plum leaves as stated, and I also found a sweet liquid substance on the leaves. It was agreeable to the taste, and appeared to be light in color. The tops of the leaves were free from aphides; but when the under sides were examined (this is where aphides do their work), colonies of plant lice were found. Close investigation often reveals the source of a thing. It is like the hidden gold—found by the careful examiner.

THE NEW BEE DISEASE IN CANADA.

The Haldimand Bee-keepers' Association met at the residence of Mr. O. Warner, on June 12. Practical demonstrations took place in the apiary, and refreshments were kindly served by the Misses Warner, making the meeting both profitable and enjoyable.

The most striking feature of the meeting was a statement made by Mr. Morley Pettit, provincial apiarist. Mr. Pettit had just returned from Durham Co., where the new kind of foul brood had broken out last year. Mr. J. L. Byer, at that time inspector in the district, stated at the National convention, Detroit, and at the Ontario convention in Toronto, that the outbreak of this disease (called by some European foul brood) was much more serious than that previously known to Canadians. Some rather sneered at Mr. Byer, and considered him unduly alarmed. My own suggestion at Detroit, that the government had better buy the diseased apiaries and destroy them before the disease spread over a wider area, was also laughed at; but laughter is neither logic nor reason. Mr. Pettit stated that the disease (new in Canada) was spreading at a fearful rate; that it was far more virulent than that known previously in Canada, and that he was very much exercised about it. One apiary of 168 colonies had been reduced to 23; another of 180 to 40, and the 40 were all diseased. Other instances, equally alarming, were given. He stated that the bee-keepers were going to co-operate in their treatment, and treat every colony in an apiary, even if a portion appeared free from the disease. Mr. Pettit also stated that the bee-keepers had been forced to the conclusion that the disease spreads by means other than the robbing of affected colonies.

The writer of these notes suggested that, as the bees cleaned out the diseased larvæ, contrary to the ordinary foul brood, the larvæ might dry out, and in that light condition blow into other hives, and that Mr. S. D. House had said it was found well to change the situation of the apiary to help cure the disease. If the larvæ were blown about, the more rapid spread of the disease might in part be accounted for. However, since coming home I have still another theory to advance to account for its spread. The bees, when cleaning out the dead brood, must of necessity come in contact with the germs of the disease. When they visit blossoms they may leave the germs on them, they may even leave them in the nectaries of the blossoms. When these blossoms are visited by bees from healthy colonies the bees may carry the germs home and establish the disease there. Bees from diseased stocks should be bacteriologically examined, and, if possible, blossoms also.

Meanwhile, I repeat it would have been better had the affected apiary been destroyed in the first place; and now with as little "red tape" as possible, and as quickly as possible, the colonies in the affected district had better be destroyed, and compensation be made to the owners by the Dominion government, as it has power to act in this matter under the "Contagious Disease" act. The Provincial government has also power under the foul-brood act to deal with this matter. Perhaps the expense could be shared jointly by the two governments. In any case the initial expense would be only a trifle compared with the later cost. We do not want this new disease to sweep over the province or the dominion through carelessness or lack of energy, or by belittling its danger.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

AFTER-SWARMING.

"Have you been troubled with after-swarms more than usual this year, Mr. Doolittle? I have never had so many in my life. They just kept coming and coming, all through haying time, till I got completely tired of them. What do you do with yours when they come so fast?"

"Well, Mr. Barber, it is a rare thing that I have an after-swarm at all these years. With the plan of doing entirely away with swarming, as given in a 'A Year's Work in an Outapiary,' I do not have any swarms at all, unless, perchance, I get so crowded for time that I do not keep up with the bees."

"Well, you needn't think that all the bee world is as far advanced as you and a few others are. The majority of the bee-keepers have more or less swarming. What did you do when you *did* have after-swarms?"

"That depended very much on my wants; and the whole thing hinges upon the wants of the apiarist, locality, etc. If the apiarist desires increase instead of honey, then he probably can do no better than to hive the after-swarms in separate hives, if his locality will permit these small swarms to obtain stores enough for winter. If he has empty combs to give those coming out near the close of the season, it will help them much by way of allowing them to store honey enough to winter upon; for such small late swarms rarely fill their hives with comb, and have honey enough for winter. If, on the other hand, the apiarist desires honey instead of increase, then he should not allow any of those after-swarms to issue; and if any do come out they should be returned; for with the after-swarm goes all prospect of surplus honey from the colony from which it issued, while, if prevented, the old colony is usually much better for winter, and will often store a surplus besides."

"You say after-swarms should not be allowed to issue if honey rather than increase is desired. This is my case exactly. Now, how can I prevent their issuing, as they did this year?"

"I used to employ two plans for doing this, according to where I wished the old colony to remain. If the old colony was to remain on its former stand, the prime swarm being hived in a new location, then I retained the after-swarms by clipping off the queen-cells, for all after-swarms come because there is a plurality of queens in the hive, all but one of which are held in the cells till the time for the going-out of the after-swarm arrives, when, during the bustle of this excitement, the guards abandon the cells, and many queens often go with the swarm, especially with a third or fourth swarm. Some tell us to cut out the queen-cells five or six days after the first or prime swarm issues, cutting out all but the best one; but I find that, where this is done, the bees often rear more queens from the brood which still remains young enough to be transformed into a queen, and swarming later on is the result. My way was to wait eight days after the first swarm came out, when, as a rule, the first young queen would have emerged from her cell, when all remaining queen-cells were cut off, thus making a sure thing of it; for after eight days there is no brood young enough to be changed into a queen, should the bees so desire. To make sure that all queen-cells are off, the bees should be shaken from each frame, for, if this is not done, some cells may be overlooked, and an after-swarm be the result."

"But don't you always leave the old colony on the stand it occupied all the season?"

"No. Very many of our best bee-keepers who still adhere to natural swarming move to a new stand the hive from which a prime swarm has just issued, hiving the swarm in a new hive on the old stand, as this gives all the field bees to the swarm, and tends to stop after-swarms from such removed colony. However, even this plan is not a sure preventive for after-swarming. When I wished the new or first swarm to occupy the old stand, as I usually did, I proceeded to remove the combs from the old hive while the bees were out in the air or clustering on a tree, placing these combs in a box with all the adhering bees on them. The old hive was then supplied with empty frames or those filled with comb foundation, or frames of empty comb, according as I had before ordained, when the super was put back and the hive closed up as it was to remain. The swarm was now hived here, where it came from, which gave it an advantage over a swarm hived on a new stand, in that it had many more bees, and therefore gave a better yield of section honey."

"What about the combs in the box?"

"The box of combs, brood, and bees, I carried to a stand I wished a colony to occupy, and placed them in a new hive. During the remainder of the day quite a few of the old or field bees would go from this new hive for forage; but when returning, instead of coming to this new hive which they left, they would return to the swarm on the old stand, and thus strengthen it still more. The colony left on the old combs in the new hive on the new stand is that much reduced, so that, by the next morning, the bees feel 'poor in spirit,' and ready to give up all thoughts of after-swarming, so will receive any thing in the shape of a queen. I could then give them a laying queen, a virgin queen, or a ripe queen-cell, just as I happened to have on hand, and when they would destroy all the queen-cells of their own, with no thought of further swarming that year."

CONVENTION NOTICE.

The Pennsylvania State Bee-keepers' Association will hold its next convention in Lebanon, Sept. 8 and 9. An excellent program is being prepared, and will be announced later in GLEANINGS.

Middletown, Pa. A. F. SATTERTHWAIT.

GENERAL CORRESPONDENCE

SYMPOSIUM ON SHIPPING HONEY IN CAR LOTS.

[In our issue for Feb. 1, p. 72, we stated that the plan of shipping honey in car lots against sight draft with bill of lading attached was giving rise to more or less dissatisfaction between the shipper and the consignee; that we had been called upon to arbitrate between the parties, and that it was almost impossible to secure a satisfactory settlement; that the shipper in very many cases, and perhaps most cases, was not the producer or producers, but a middleman; that he bought up various lots of honey, each lot graded upon the individual notion of the producer of the same. The privilege of inspecting the car before payment of the draft, we added, did not allow the consignee to form any accurate idea of the contents of the car; that very often a car would be shipped to some city, and the only opportunity for inspection was perhaps in some freight-yard where it would be impossible to unload any portion of the honey in order that other portions of it, further back, might receive any kind of inspection. We gave it as our opinion that the sight-draft bill-of-lading-attached method of settlement was far from satisfactory; that some other scheme ought to be devised, and suggested that the shipper allow the consignee an opportunity to unload the car, inspect the same after being unloaded, and then, if it is not satisfactory, to hold it subject to the order of the shipper. The difficulty has come up, time and again, of where cars have been rejected. The honey is then in the hands of the railroad company; and if the weather is cold, as it has happened to be in some instances, the honey is subjected, perhaps, to a zero temperature.

We laid the whole matter before a number of large producers and comb-honey buyers to get their opinions on the general proposition, and received in return a number of responses. As the matter was hardly seasonable last winter, we have held the same until the time for shipping comb honey, and we now present the different replies right here.—ED.]

THE IMPORTANCE OF HAVING A SATISFACTORY REPORT OF THE CONSIGNEE'S FINANCIAL RESPONSIBILITY; THE CAR-LOT BUYER, NOT THE PRODUCER, RESPONSIBLE FOR DISSATISFACTION.

In the twelve years that I have been manager of the Colorado Honey-producers' Association, many carloads of honey have been sold by us with sight draft attached to bill of lading. We have also received a number of carloads with sight draft attached to bill of lading, and have therefore had plenty of opportunity to study this question from all sides.

As we are a co-operative association of bee-keepers, our main business is the marketing of the crops of our members, principally comb honey, in carload lots. We generally ship the same direct from the locality where it was produced to our customers east. All honey shipped out by us must be graded and packed according to Colorado rules, and is inspected before it goes into the car. Lots not coming up to the requirements have to be graded over before they are accepted. The loading and packing is also done by the association; and if the car is shipped with sight draft attached to bill of lading we must have a satisfactory report on the consignee's financial responsibility and business reputation, based upon experiences of their customers, before the car leaves. The rating of a firm in Dun's and Bradstreet's may be highly satisfactory, but at the same time it would be a risky proposition to ship such firm a carload of comb honey sight draft attached to bill of lading. It is quite a common occurrence to see carloads of produce turned down when shipped on such terms by firms having a good commercial rating, especially where the shipper is a long distance away, when there is no good reason for such rejection. Some of the causes for such action are, a declining market, an oversupply of the commodity in the locality, or an attempt to force the shipper to make concessions. Should the shipper be an individual without any extended business connections, such a turndown is more likely to happen than with an established firm that could readily ascertain the exact condition in which the car arrived at destination, and, if necessary, divert it quickly to some other point, and give the firm employing such tactics a well-merited exposure.

To prevent these altogether too frequent abuses of the confidence of the shipper, an organization was established called "The Produce Reporter Company," with headquarters in Chicago, which gives the financial rating as well as the experiences of shippers with receivers, and *vice versa*. If a carload shipment of one of its members is turned down, the head office is notified by wire, and they instruct one of their nearest inspectors to investigate the cause of rejection, and the result of such investigation is then published in their weekly reports. It can readily be seen that this affords quite a protection to the shipper, and at the same time it also protects business firms against careless or dishonest shippers and producers. While an individual producer of an occasional carload of honey may feel that he could not afford the expense of this service, a co-operative association of producers should not be without it, as it is the means of holding the members to a careful application of their grading-rules, induces better business methods, and gives needed protection.

If investigated it will be found that one of the principal causes of dissatisfaction with carload shipments of comb honey are instances where same *has been gathered up by honey-buyers* from many different producers, having different standards for grading their honey, or none at all, and using any style of shipping-case that comes handy. Some of these lots may be closely graded, properly packed, and give satisfaction to the most exacting buyer, while others are dumped into cases out of the supers with no grading or scraping. The buyer will sometimes pay very little more for the well-graded lot; and, as a consequence, a premium is placed on carelessness; therefore, when trouble arises over such a car lot it is not just to haul the bee-keepers over the coals for it (the careless grader generally does not read bee journals), *the car-lot buyer that picked up these various lots in the country being the person that should be exposed.* Such a buyer saw each lot, and inspected it before paying the producer for it, and knew what the car contained; and if

he knew that his reputation was at stake he would either turn down poorly graded stock, or, if he bought it at all, he would buy at such a low figure that he could afford to sell it again for what it actually is. Not until then will the careful grader who is obliged to sell through such parties get his just dues, and his negligent neighbors will either mend their ways or quit the business.

The editor well says (page 73), "If the goods are carefully packed, and up to the standard as to weight for each grade, there will be no trouble, even at the present basis." We would add that the shipper should be satisfied he is dealing with a firm that is willing to live up to the golden rule before he lets his product go.

Denver, Col. FRANK RAUCHFUSS.

THE SIGHT-DRAFT PLAN ALL WRONG; A SHIPPER SHOULD HAVE CONFIDENCE IN THE BUYER, AND THEN NOT INSIST ON SUCH TERMS.

Since we have been in business we have had a good deal of experience in shipping with sight draft attached to bill of lading, and in a number of instances we have been heavy losers. If it does not take too much space, we should like to cite one instance which occurred this year. We bought from a certain firm in California, with whom we had been doing business for the past twenty years, several cars of honey this season. Heretofore all their shipments proved entirely satisfactory, and we felt satisfied that we could rely on them in every instance. The first two cars we received this season from this firm proved entirely satisfactory. The third car came along containing about 300 cases valued at about $2300 besides freight, and we honored that draft the same as heretofore, without examining the honey. While we might have been at fault in not examining the honey, we were so sure that the goods would be all right that we did not consider it necessary. We did not remove the honey to our store, having no room, but put it in a warehouse, and had no occasion to examine it until a few weeks later. This car was sold to us as choice quality Southern California white-sage honey, and so stipulated in the contract given to us by the broker. Upon examining the honey we found no white honey at all. It was all light amber and amber, and a very poor quality at that. The difference in price between the goods we originally bought and the goods we received was at least from 1 to 1½ cts. per lb. Meanwhile another car arrived from the same party, and we thought best to examine this before paying draft. This car was not up to the standard, and we notified the broker that we were compelled to reject the car on account of poor quality. The broker had the honey examined himself on the dock, even drawing more samples than we did, and admitted that it was a very poor delivery, none of the honey coming up to the standard, and that we were perfectly justified in rejecting the goods. We took the matter up ourselves with the California house on this last car, and also wrote them about the former car for which we had paid, telling them we had no desire to be arbitrary, and they wrote back, asking what allowance would be satisfactory to us. We wrote them that their own broker should draw samples from the car, and that whatever amount their broker thought was a reasonable allowance would be satisfactory to us and we would be willing to abide by his decision. We wrote them that, as their broker was their authorized agent, he certainly would take care of their interests, and that at the same time we felt satisfied he would do us justice as well. Thereupon they coolly wrote back that, inasmuch as we had paid the draft and taken in the honey, they had to consider this instance closed, and would not listen to any allowance. We, by the way, do not consider it closed by any means, for the law holds that, even if you do examine part of the goods, accept them, pay for them, and can prove afterward that the entire lot is not like sample drawn, the shippers are liable. Whether we recover any thing remains to be seen, and the only way left open for us is litigation.

This is only one instance. We can cite many more of the same nature, and therefore we have concluded not to pay any more drafts until we are satisfied that the shipments are up to the quality and that we get what we bought. In our opinion the sight-draft business is all wrong, and entirely in favor of the shipper; and, as far as we know, it is practiced only in California and the far West, where these rules were adopted years ago. We receive large shipments from all other parts of the country as well as abroad, and are not asked to pay sight draft.

The question is certainly a serious one; but we really must confess that we can see no way in which a more satisfactory understanding can be arranged. The basis of transaction on a large scale should be confidence and faith between the seller and buyer, and every shipper who has confidence in the buyer should not insist upon any such terms.

HILDRETH & SEGELKEN.

New York, Feb. 8.

THE BUYER SHOULD HAVE EQUAL RIGHTS WITH THE SHIPPER; THE BUYER SHOULD SEND A MAN UNLESS THE SHIPPER IS KNOWN.

In reference to shipping honey in carload lots, sight-draft bill of lading attached, I regard it a good thing that this subject came up. I do not see why a responsible person can not buy honey without paying for it before seeing it. Everybody knows that you can not inspect a car of comb honey in the car. We have met with just such trouble as you give an account of. Of course we have had some excellent carload shipments made to us, goods being just the same as represented. Then, again, they were not what they should be. I think it is not more than fair that the buyer should have equal rights with the shipper.

There is a good deal of dishonest grading. We by far prefer sending our man, when we buy car lots, unless we know from whom we are buying. We would refuse to take a car of honey, sight-draft bill of lading attached, unless we knew the party shipping.

CHAS. H. WEBER.

Cincinnati, O., Feb. 8.

THE FAULT LIES WITH THOSE WHO ARE IGNORANT OF REQUIREMENTS AND OF GRADING-RULES.

We have read your article entitled "Shipping Honey in Carloads on Sight Draft with Bill of Lading Attached; some of the Troubles of the Shipper and Consignee."

We would not have made any comments upon it except for your drawing attention thereto under date of Feb. 6. We are of the opinion that you have undertaken to regulate something that may present many difficulties. We have found during our business career that the men or firms who make a business of cheating are few in numbers; and when we have found those addicted to that, we have ceased to deal with them, for these men know what they are doing.

Our greatest difficulty has been with those who are ignorant of our requirements, and careless in the preparation of their merchandise for market. These we have found to give a great deal of annoyance, for the reason that their intention was not to deceive. Much improvement has come about of late years, and now there is a general knowledge among those handling car lots of honey, that certain requirements as to grade and method of marketing generally are necessary. We are of the opinion that publication of aggravated cases would be helpful.

R. A. BURNETT & CO.

Chicago, Ill., Feb. 8.

CONSIDERABLE TROUBLE WOULD BE SAVED IF HONEY-SHIPPERS WOULD SELL ONLY TO RESPONSIBLE PARTIES, AND THEN BILL THE HONEY OPEN.

As a rule, the early part of the season where we are loading carloads of comb or extracted honey we usually have our own representative on the ground to inspect, accept, and load. Extracted, we at times buy draft bill of lading attached subject to draft being held for arrival and examination of car. Some of our honey-shippers, that we have been dealing with in the past, load cars as agreed upon, properly graded, and give us what we buy; then, again, there are others who may want to do what is right, but are not sufficiently familiar with the grading-rules, or they sell one thing and ship another, and this is where the trouble commences.

It is not good policy to have the railroad companies unload comb honey in their freight-houses. In the first place, the railroad employees do not know how to handle comb honey; and before they get it unloaded, considerable will be damaged. On the other hand, it is impossible to inspect a car of honey properly as long as it is still in the car. Then, again, railroad companies have no right to unload the honey when goods are consigned to shipper's order.

In our opinion, if the honey-shippers would confine their operations to responsible houses, and then bill their honey open, it very often would avoid considerable trouble; but where a seller sells one grade and puts in two or three grades, it invariably will lead to rejection, and then the fault is all blamed on the buyer. In more cases the seller does not know any better, while, again, he may feel indifferent, thinking that draft may be honored on presentation. When such cars are rejected they are often turned over to brokers or dealers who are not in the honey business, and are not in the habit of handling this commodity, except on such occasions; and honey of this kind is usually sold at the best obtainable price, to the detriment of the regular honey-dealers.

Chicago, Ill. S. T. FISH & CO.

[In our opinion the best solution of the whole difficulty is for consignee (as some of them do) to send a representative into the territory where the honey is produced, and instruct him to buy, after thorough inspection, and load the same before he leaves. A car of honey may cost all the way from three to six thousand dollars, and seventy-five dollars or a hundred is a very small amount to invest in order that there may be entire satisfaction to both sides of the deal.—ED.]

AN OPEN LETTER TO DR. MILLER.

Is it Advisable to Give Young Brood to a Colony that has a Virgin? Does the Giving of Such Brood Stay Swarming?

[The following discussion between two old veterans involves some practical considerations, and we are glad to place it before our readers.—ED.]

Dr. C. C. Miller:—In the A B C of Bee Culture (edition of 1905, page 287), under the head of "Virgin Queens" Mr. Root advises giving a comb of young brood to a colony having a virgin queen, if the colony does not already have such brood; and he gives three different reasons for doing so.

In GLEANINGS, 1907, page 185, three writers, D. R. Keyes, W. D. Achord, and J. A. Crane, say that giving young brood to a colony having a virgin queen, before she begins laying, will cause the bees to start queen-cells on the brood given, and to kill the queen. How do you reconcile these two statements?

I always used to give young brood, when none was present, as soon as I knew that a queen had hatched, principally to prevent the bees from swarming out with the queen when she came out to mate; and I found that it had the desired effect, but I also found many young queens missing when I expected to find them laying.

Since reading the statement of Messrs. Keyes, Achord, and Crane I have omitted

giving young brood in this case, but have been greatly annoyed by swarms following the virgins on their mating trip. When several come out at the same time they generally cluster together, causing a bad mix-up, and sometimes resulting in absconding. As it is not always possible to tell the exact time when a queen will hatch, giving young brood *in advance* might cause this brood to become too old to be used for queen-cells, if the virgin should happen to be lost on her excursion. I have, therefore, waited until she was out of the call, whether I saw her or not. What is your practice, experience, and success in this case?

WM. MUTH-RASMUSSEN.

[Dr. Miller replies:]

It is not always easy to reconcile statements. Sometimes there is a difference in conditions that makes a difference in results, although that difference in conditions may escape observation. Then there is that old legend, "Bees do nothing invariably."

If we refer to the practice of the bees under normal conditions we find that, after a prime swarm issues, the virgin emerges from her cell when young brood is no longer present. If that proves any thing, it proves only that the presence of young brood is not necessary. In cases of natural supersedure it often happens that the old queen continues laying until the daughter has begun to lay, and in that case the young queen finds eggs and young brood present during the whole period of her virginity. Certainly in that case Dame Nature does not consider it an error to give young brood where a virgin is not yet laying. So there are at least some cases in which the presence of young brood does not cause the bees to kill the virgin and start fresh cells.

As to my own practice, I have never hesitated to give young brood to a nucleus having a virgin. Looking at my record for last year, the first entry to which I open shows that I gave to the nucleus a frame of young brood at the same time I gave a virgin, and in due time the virgin was laying. In the next case there was young brood present in the hive when the virgin was given, the laying queen having been removed a day or two previously. Perhaps neither of these two cases is exactly what we want, for, strictly speaking, the question before us is whether it does harm to *give* young brood when a virgin is present. In the next five or six cases I found again that young brood was present when the virgin was given, and the virgin in each case became a laying queen.

Then I turned to this year's record, and the first nucleus to which I turned furnished a case in point. A sealed cell had been given May 29. June 3 I found the virgin had emerged from her cell, and I gave the nucleus a frame of young brood. June 14, on opening the hive I saw the queen on the combs. That was clear proof that at least in one case the giving of young brood had not resulted in the bees killing the virgin. Next time I looked she was laying finely. I have had many like cases.

I may say that my object in giving young brood is, for one thing, to help next time I look into the nucleus to know whether a queen is present. If no queen-cells are started I may feel confident there is a queen in the hive, although *cells are sometimes started while a virgin is present.*

Another reason is the belief that the presence of young brood may have, at least indirectly, a tendency, as A. I. Root teaches, to incite the young queen to laying. Still another is that giving young brood helps to keep up the stock of young bees in the hive; for, later on, this brood will become young bees. Perhaps of still greater importance it is, that giving unsealed brood will help to *keep* young the bees already in the hive. Of course it can make no difference in the actual age of the bees; but it may keep them nurse bees; whereas if there were no brood to be fed they might assume the *role* of field bees.

Some one may still insist, "But others find that giving young brood makes the bees kill the virgin and start queen-cells." Well, as I have already said, it is certain that young brood brings no such result in cases of superseding; and it is just possible that it was taken for granted that the bees killed the virgin because of the presence of young brood, when young brood had nothing to do with it. There are ways in which a virgin may be lost without the workers killing her, and workers may kill a virgin without being egged thereto by young brood.

At any rate, however it may be with others I do know that for many years I have been giving young brood to nuclei with virgins, and have had those virgins live and be happy ever after. C. C. MILLER.

GLEANINGS' FIRM STAND FOR PURE FOOD COMMENDED BY DR. WILEY.

ON page 356 of our issue for June 15 we published a comlimentary reference to Dr. Wiley and the work he was accomplishing in the interest of pure food. It is only one of a good many other notices of like character that have appeared in these columns. But, apparently, Dr. Wiley has been keeping in touch with what we have been doing, and in the letter that follows it appears he appreciates the backing we are giving him.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF CHEMISTRY.

Mr. E. R. Root:—I had already read your very nice article. I am glad to have your support. I believe that the cause of pure food will triumph, for the people of this country are opposed to adding preservatives and other substances to foods. They want the foods pure; and if they drink whisky they want it straight. I appreciate the firm stand which GLEANINGS has taken in support of the fight I am making for the purity of our foods. H. W. WILEY.

Washington, D. C., July 3.

There are a few journals of influence that are trying to discredit Dr. Wiley. Whether they are biased by certain advertising patronage from the adulterators, or honestly misled by articles inspired by the same source, we can not say.

EXTRACTING HONEY WITHOUT OPENING HIVES.

A Proposed Plan for Sucking Honey Out of Combs by Means of a Vacuum Pump.

BY L. W. AVANT.

[Something over a year ago Mr. Avant wrote us, stating that he had a new method for the extraction of honey out of the combs without opening the hive or in any wise disturbing the bees. Of course, we were interested; and the result was, after some little correspondence, he revealed the general plan, but which plan at the time he was not ready to give to the public. Since that time he has made formal application for patents covering all the basic principles of it, and has now consented to place it before our readers.

By way of further explanation we may say that the invention involves the use of special stationary combs having hollow core boxes, or, perhaps we had better say, a hollow midrib. In the sample super sent for our inspection the comb was built out to and in contact with the ends of the super. Ordinary comb made up from foundation, or as made by the bees, has a midrib that supports the cell-walls on either side. If the reader can imagine this midrib split on a vertical line, running clear down through the comb, so that each cell retains one-half of the midrib, and if he can see in his mind's eye these two halves separated about ⅛ of an inch, he will get an idea of the construction of this special comb. As it is not possible to divide an ordinary comb on this plan, Mr. Avant makes a hollow midrib of metal having perforations five to the inch. Each one of these perforations is so placed that it shall be the bottom of every one of the cells of comb. To get the bees to build this right, foundation is placed over this perforated metal so that the base of every cell shall be just over one of these holes in the hollow box or core. These are closed, while the bees are drawing out the comb, by a wooden or metal core. When the comb is drawn out and filled with honey the core is removed, when the suction box is inserted through a slot in the end of the hive. This sucks the honey out, we might say, *backward* through the beforementioned perforations at the base of each one of the cells. The suction then carries it on into the pump, whence it delivers it to any receptacle desired. The reader must clearly understand that the honey comes out of the combs by the exact reverse of the manner in which it comes out of combs extracted in the regular way.

Right here the question will arise, "What is done with the cappings?" Mr. Avant has been encountering some difficulties, apparently, because it was almost impossible to make the suction strong enough so that the cappings will cave in, as it were, thus permitting the honey to pass, by suction, out of the base of the cells. It is, indeed, remarkable that he has been able to "uncap" to some extent, in proof of which he sent samples of a comb that he had extracted, with cappings that had caved in; but owing, possibly, to the fact that the extraction was only partially complete by reason of insufficient power being generated to perforate or cave in all the cappings, Mr. Avant, of late, seems to have been working on a slightly different plan of extracting *green* honey, or nectar, and feeding it back on the plan that he describes in the subjoined article. If the honey is extracted while it is thin, and *before* it is capped over, the resistance will be more easily overcome.—ED.]

When we read of unsatisfactory markets, the fight against adulteration, and the manufacture of cheap syrups, etc., it seems pertinent to ask ourselves the question, "Is it possible for us as bee-keepers to improve our methods and equipments so as to produce honey more cheaply?" That our industry is burdened with a multiplicity of equipments I think no one will deny after considering the appliances that the modern bee-keeper must use. To what extent my pneumatic extractor and some plans that may be employed with it may tend to relieve the present conditions I submit to the candied judgment of a fair and impartial public.

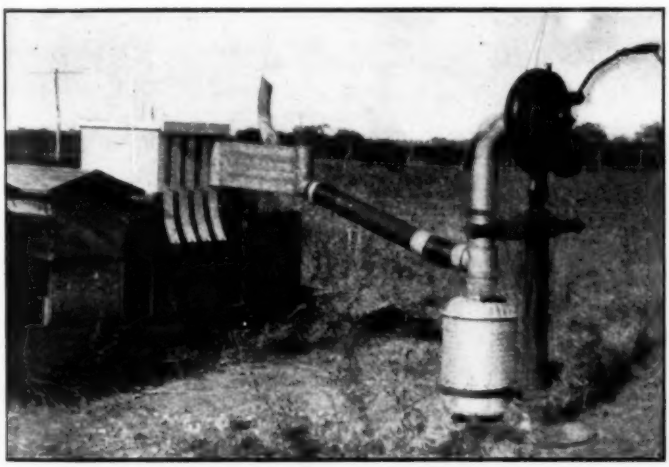


FIG. 1.—AVANT'S VACUUM HONEY-EXTRACTOR WITH SUCTION-BOX THAT PASSES INTO THE CENTER OF EACH COMB.

By my process the honey can be taken direct from the hives in a marketable condition and automatically weighed in the can in which it is to be sold. This is accomplished without opening the hive or uncapping or removing a frame. In fact, neither honey nor bees are seen in the operation.

The process is altogether through the peculiar construction of the frame, which is simply a hollow box or frame of the same dimensions as the Langstroth, that we are enabled to take the honey by suction.

The frame consists essentially of two perforated metal sheets forming the sides of the box-frame. The bees build their comb on the outside of this box, with a perforation at the bottom of each cell, through which the honey is drawn to the interior of the frame, and, through suitable piping, to the honey-can. These perforations are closed and opened by means of unperforated sheets secured in juxtaposition to the inner surfaces of perforated sheets when first given to bees, or withdrawn when extracting. The removal of these sheets for opening the perforations at the bottom of the cells, and the application of suction, is accomplished through a slot provided for each frame in the back end of the hive.

Fig. 1 shows the extractor in position to operate, with the suction-box beginning to

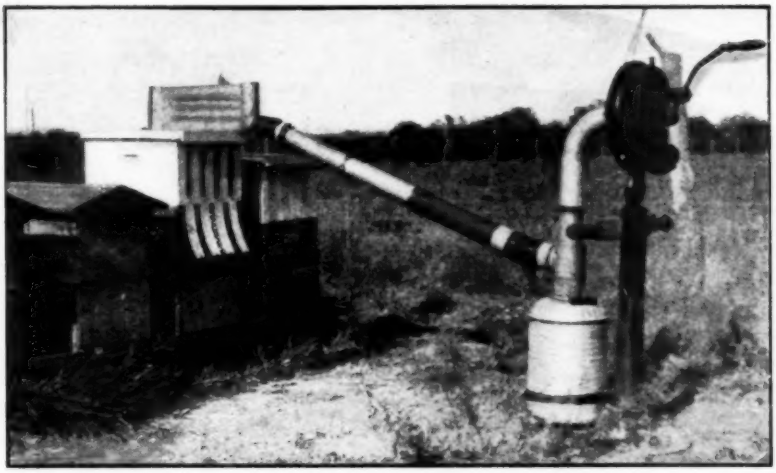


FIG. 2.—SUCTION-BOX EXTENDED FULL LENGTH AS WHEN PUSHED INTO THE OPENING IN SUPER.

enter a frame. Fig. 2 shows the extension of the suction-pipe in entering full depth of frame. Fig. 3 represents a Mason fruit-jar attached in experimental work for the purpose of observing the flow of honey. Fig. 4 represents the extractor when not in use or ready to remove to another hive. Fig. 5 represents a frame when given to the bees. Fig. 6 represents a finished frame from which the honey has been extracted.

I might add that I have been taking honey in an experimental way by this method for a number of years.

While this may greatly expedite and reduce the cost of production, the greatest benefit will probably come through the introduction of a method at least partly new for the production of both comb and extracted honey. This method is dependent, primarily, on our ability to preserve nectar for a few weeks until the honey-flow ceases. The nectar will then be fed back, and finished as extracted or comb honey. The facility with which the apiarist may take honey by this process will enable him to go over an average apiary every few days, thus constantly providing empty combs and guaranteeing the greatest possible amount of nectar.

This nectar should be extracted as soon as ready to cap, placed in 60-lb. cans, hermetically sealed, and stored in a cool room. If it is desired to produce comb honey, the comb supers are placed on hives when the flow be-

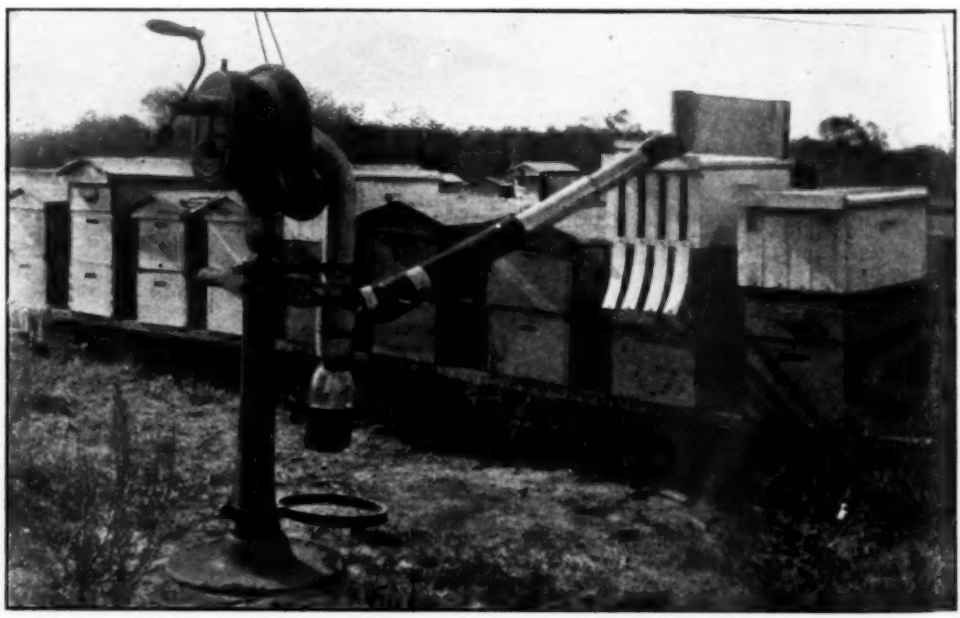


FIG. 3.—MASON JAR IN POSITION TO SHOW THE PROGRESS OF THE HONEY SUCKED FROM SUPER.

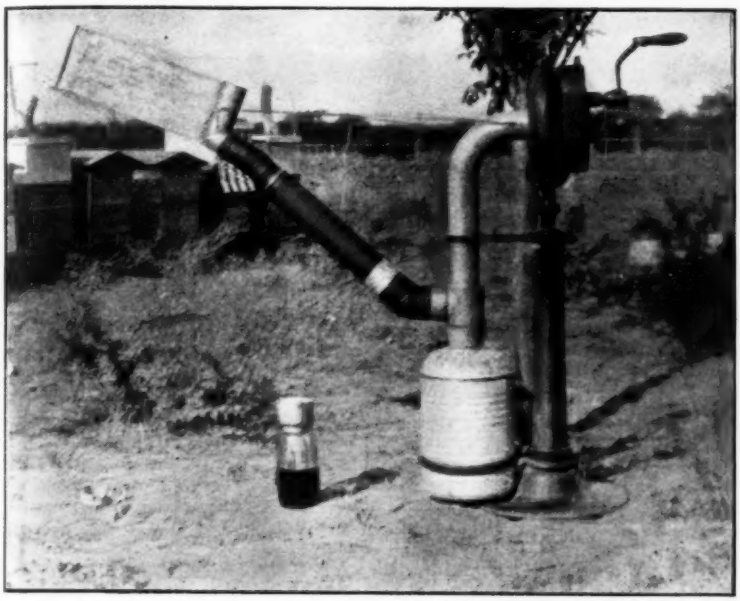
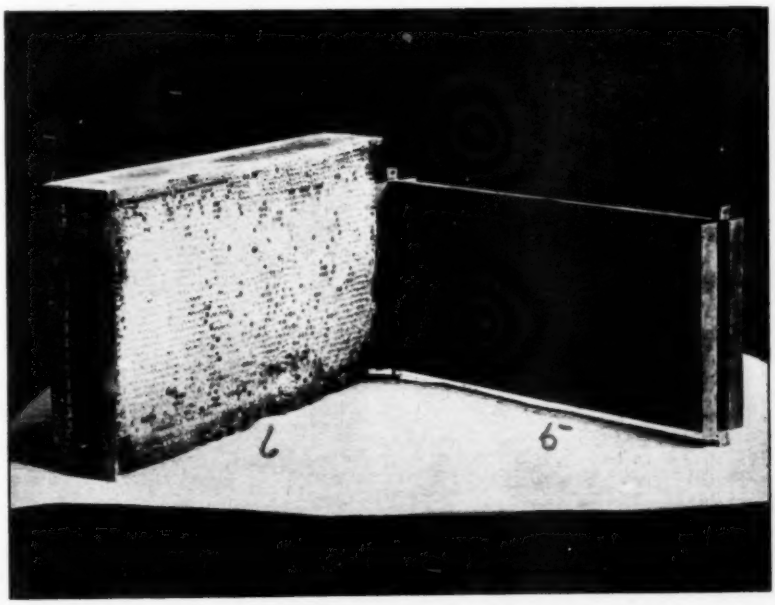


FIG. 4.—READY FOR MOVING TO ANOTHER HIVE.

gins to check, and this nectar is fed back for this purpose. The process presents ideal conditions, not only for the greatest amount of comb and extracted honey, but the rapidity with which the honey is taken will probably render it practicable to empty all combs with each change of flowers, thus rendering easy the matter of keeping each source of honey separate.

The main condition in swarm control, that of empty combs, is promoted by the frequent extracting of nectar. We would probably be entirely successful on this line if we would take the pains occasionally to relieve the brood-nest of nectar. This might be accomplished by going over the apiary late evenings a few times before extracting, or shaking, cutting the upper edges of combs, or other means to induce the bees to fill their sacs. Then place the brood-nest on top of the extracting-super and smoke the bees down into the same through a queen-excluder. The brood-nest and super should then be changed to normal position with a wire gauze between to retain bees above during the night. This will also be excellent to start comb-building, while the swarming fever of the queen will doubtless be lowered several degrees after she has remained almost alone in the brood-nest all night. Of course the gauze should be removed next morning.

I submit to the experienced apiarist of the country what per cent of gain in honey may be accomplished if we can take the nectar as fast as gathered, preserve it, and feed back when there is nothing else for the bees to



FIGS. 5 AND 6.—AVANT'S SPECIAL FRAME WITH A HOLLOW CORE, ADAPTED TO THE VACUUM EXTRACTING SYSTEM.

get. Critical times indeed, these, when bees are gathering ten pounds or more per day! I should be glad to have the observations of practical bee-men. I could probably arrange a public demonstration at the San Antonio International Fair this fall.

Atascosa, Tex.

[There are some mechanical difficulties to be overcome yet before this plan of extracting honey can be regarded as a complete success, and we have some doubts whether Mr. Avant will ever be able to do it on a working commercial basis. It is not our purpose to throw cold water upon this invention; nay, rather, Mr. Avant should be encouraged. But in the meantime, in view of the failure of so many promising inventions we feel that we owe a duty to the bee-keeping public by taking a conservative attitude.

Honey can be extracted by the old-fashioned way, with the power-driven extractors, using an uncapping-knife, at a mere fraction of a cent a pound. Even if Mr. Avant can bring his method to a state of perfection, the relative saving, if any, will be very small. Furthermore, one can get only half as many combs of the Avant type in a given hive capacity as he can get of the ordinary combs. This will require the use of twice as many hive-bodies with special slotted ends, and combs that will cost anywhere from three to four times as much as the regular combs. Moreover, these special combs will be built against the hive-ends, making their removal impracticable. Again, the extracting-outfit would have to be shifted for each hive, and a suction pump like this would be no light affair. These items of extra expense would make the cost of the Avant method of extracting, in our judgment, exceed the cost of the present plan.

The only way that Mr. Avant can possibly make it work would be to extract green honey, as he proposes in his article above. Whether he can keep this in hermetically sealed cans remains to be proven. It is well known that green honey will sour very quickly. It will be something of a problem, if one takes out several thousand pounds of nectar in a day, how to keep this hermetically sealed until it is time to feed it back. Just suppose that the sealing should break in the meantime. Very shortly the nectar would begin to ferment and sour. But suppose it does not sour, it is doubtful if feeding back in this way can be made profitable. Feeding back on any basis is a doubtful proposition.

On the other hand, inventions with more obstacles in the way than this, apparently, have beaten their way to a brilliant success. We marvel that Mr. Avant has succeeded as well as he has. Any man who has originality enough to strike out on entirely new lines, as he has in spite of all discouragements, and go as far as he has done, has our unqualified admiration. We are entirely sincere when we say we wish him success; and if there is any thing we can do to help along this invention, in a reasonable and proper manner, we shall be glad to do it.—ED.]

A CONE-SHAPED HONEY-STRAINER MADE OF PERFORATED METAL.

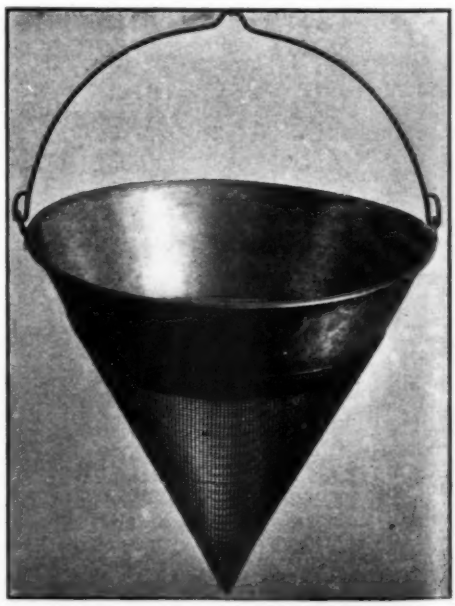
BY JOHN BAILEY, SR.

I am sending you a photograph of my honey-strainer, thinking it may be of interest or benefit to some of the readers of GLEANINGS. This strainer is of my own contrivance. I use it in many different ways, both for honey and wax, and I like it better than any I ever tried before. It can be used with or without cheese-cloth, either inside or outside the strainer. It will strain the honey perfectly, faster than any extractor can extract it. If it gets clogged with cappings it is simply turned upside down over the capping-tin, and tapped lightly, when all the cappings will fall out. I use a large wire-cloth dish, about the shape of a saucer, on top to catch any large substance or bees.

I find this form of strainer very handy for straining beeswax. I simply hang it over the dish I want the wax to run into; put inside a piece of cheese-cloth, and pour in the melted wax till the dish is full enough. The strainer is 12 inches in diameter at the top and 14 deep to the tip of the point. The tin rim on top is four inches wide; the rest is of fine perforated metal.

Bracebridge, Ont.

[This device looks as if it might give good results. It could not, however, be used to strain honey into the bunghole of a barrel without an additional funnel; but a large one can be obtained at almost any hardware



BAILEY'S CONE-SHAPED HONEY-STRAINER MADE OF PERFORATED METAL.

This strainer may be used with or without cheese-cloth.

store or tinshop for a few cents. If strips of wood ⅛×½ inch be put down in the funnel this strainer could be set inside, for there would then be a space between the funnel and the strainer equal to the thickness of the strips of wood.

Any beekeeper who is interested could take this engraving to his tinsmith and have him make up one at a price probably not to exceed $2.00; and, while he is about it he better get a big tin funnel to go with it.—ED.]

PALMER'S WATERING-PLACE FOR BEES.
The bricks and sand prevent the bees from drowning.

GIVING BEES WATER THROUGH THE MEDIUM OF COMMON HOUSE BRICKS.

BY C. B. PALMER.

The photograph that I am sending shows my bees taking water on a cold windy day. They go down among the old brickbats and get out of the wind. I have tried this for some time, as mentioned on page 829, July 1, last year. Ten cents' worth of cement will make a bowl that will hold two pails of water, and water all the bees in the neighborhood. Just scoop out a pocket in the ground and cement the sides and bottom. Make the sides on a slant. I have an old flat stone in the center a little lower than the brickbats, with sand on it, and sand spread out on the edge of the sides or rim of the pocket. Leave the brick in all winter, and the sides will not break from freezing. I have used this one two years without loss from drowning.

Bradshaw, Nebraska, May 15.

[If there is no convenient watering-place near at hand except neighboring pumps or watering-troughs, it would be well to provide a watering-place in the yard. Something of the kind like that here shown we believe is as good as any thing that has been described.

If there is a creek or pond not more than half a mile away it may not be necessary to fix up any special place, but bees should not be compelled to bother neighbors in order to get water. There has been some ill feeling and threatened lawsuits because of bees being around drinking-places for stock.—ED.]

GLASS IN SHIPPING-CASES NOT NECESSARY.

BY J. E. CRANE.

Dr. Miller, page 262, says, "That Crane shipping-case of paper doesn't look so pretty as the old case. You can't make as fine a show with such cases piled up as you can with wood-and-glass cases." Doctor, here is where you and I agree perfectly. But the object of shipping-cases is not to look pretty, but, rather, to carry the honey safely from the home of the producer to the retail dealer. I have spent hours and perhaps days in admiring my honey through glass, and in piling it so as to show to the best advantage; but after many years' experience in shipping honey without glass I very much question its value, and have come to the conclusion that its worth has been greatly overestimated. One of the advantages claimed for glass in shipping-cases has been that those who handled it could see what they were handling, and therefore would handle more carefully. However, in spite of the glass a large amount of honey in wooden cases gets broken. A label pasted on top of the case, telling in large letters what the case contains, and asking politely for careful handling, I consider even better protection.

As to the value of glass in cases to increase sales as mentioned by Wesley Foster, page 1312, 1908, I believe it, too, has been overestimated. While the comb honey showing

through the glass may and perhaps often does attract customers, there are other ways quite as sure and desirable.

During the last fifteen or twenty years Vermont bee-keepers have used very little glass, and we have never noticed any lessened demand for honey when we changed from glass to cases without glass. Indeed, there is usually a greater demand for our honey than we can supply, and at a price even higher than for that in cases with glass sides.

By the way, we have recently had some experience with wood-and-glass cases that may be of interest in this discussion. A few months ago we received a letter from a large wholesale house, asking us if we could use some white comb honey that had granulated; and if so, to make an offer for it. We (not the editorial *we*, but J. E. Crane & Son) replied, offering six cents a pound for the lot. It was soon shipped to us, and we found it was originally a fine lot of No. 1 honey. Some of it would grade "fancy." It was packed in the most approved style of wood-and-glass cases, with paper tray and cross-sticks to support the sections above the drip. We found, on cutting the combs out of the sections, one or more broken in a majority of the cases. In one case the glass was broken badly, but had remained in place. In another case the glass was gone, and mice or rats had helped themselves to the combs next to the opening. Now, this honey had evidently remained at this wholesale house for a year or more because not enough honey could be obtained in cases without glass, until it was sold at six cents a pound to get it out of the way. I do not suppose every lot of honey would turn out in this way by any means. Much will depend on the market. In this case honey in wood-and-glass cases was sent to a market where honey put up in cartons was preferred. It shows, however, that the sight of honey through glass is not necessary for its sale, for we could not supply the same market with enough honey in cases without glass.

It is reasonable to suppose that, in markets accustomed to glass, the wood-and-glass cases may for a time have the preference over cases without glass. To meet this demand and adapt the paper case to such conditions I made, some time ago, an improvement that will remove Dr. Miller's objection by cutting two holes through one side of the case, and inserting a glass between the two layers of paper that form the shell of the case. Any one can easily cut out these holes as shown in the photo, and insert the glass. However, I do not myself believe in the use of glass; and the less used, the better. Still, it might be better for a time to pack a few cases in this way until the trade becomes accustomed to honey put up without glass.

In buying honey the buyer does not judge of the quality, so far as I have observed, by the few combs shown through the glass any more than the fruit-buyer does by the large strawberries on top of a basket or the large apples at the head of a barrel; and I think that, in the near future, glass will no more be needed in a case to show off honey than in the head of a barrel or in a box to sell apples or oranges.

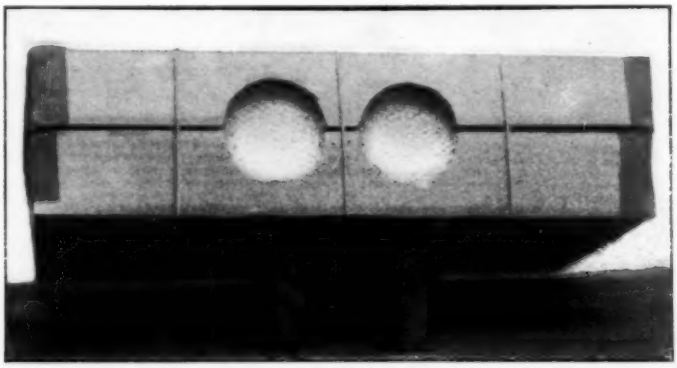
Middlebury, Vt.

[Somehow the appearance of the glass corrugated shipping-cases does not strike us favorably. It would be much better, in our judgment, to make use of a label on top of the case, indicating the special character of the contents of the package, requesting careful handling on the part of railroad employees and truckmen.—ED.]

BEE CULTURE IN THE CENTER OF A CITY.

BY A. F. REXROTH.

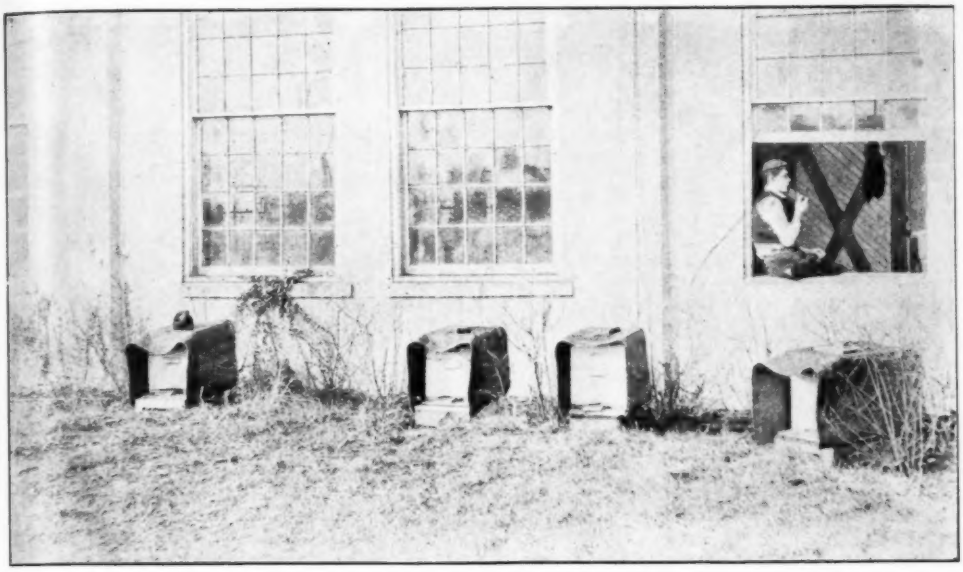
We started in the spring of 1908 with one strong colony and one very poor one. We found that the mice had destroyed a greater part of this second colony, only about 1½ pint of bees remaining. These we placed in another hive with a lot of combs in good condition, with about 20 lbs. of honey. A few weeks later, on examining them we found they had a nice lot of brood; and by the middle of July we had a strong colony which produced 28 lbs. of honey. After taking this honey these bees went into winter quarters weighing 54½ lbs.



CORRUGATED-PAPER SHIPPING-CASE, WITH OPENING IN SIDE TO SHOW THE HONEY.

The first colony gave us two good strong swarms early in the season. The first swarm filled a super with 24 lbs. The second swarm went into winter quarters weighing 46½ lbs. This first colony, after giving us two good swarms, also made 45 lbs. honey in supers.

The result of our first



A SMALL APIARY CLOSE TO A CAR-BARN IN HARRISBURG, PA.

attempt at bee-keeping, starting in the spring with one strong and one weak colony, was two new swarms and 100 lbs. of fine white-clover honey.

We attribute our success largely to the valuable information we received from GLEANINGS and advice from State Zoologist Surface.

The accompanying photograph is of our four colonies in winter quarters. The hives have a tar-paper covering, and the supers are filled with chaff. Our little apiary is located at the Central Pennsylvania Traction Company's car-barns.

Harrisburg, Pa.

SOME PUZZLING PROBLEMS CONCERNING QUEENS.

Why Did the Queens Die Off so? Some Queer Queen Capers.

BY F. DUNDAS TODD.

Some facts of nature are well known, their causes understood; so, given a certain set of conditions, we can generally foresee the end. But, much as we have learned about agricultural operations there are many causes about which we know practically nothing; so, when we come to examine critically the results of all our efforts, and try to account for them in an intelligent (that is, a scientific) way, we are unable to do so, and so we satisfy our minds by changing the term and explaining every thing by charging it to the season.

Thus, the term "season" is merely a mental dust-bin into which we tumble all the annoying economic agricultural problems we can not solve, and so get rid of them, to the great comfort of the gray matter in our cranium. A few try to push the issue a step further back, and wrestle with such erudite prophecies as are to be found in Moore's Almanac or that published by the Rev. Hicks in St. Louis.

Keeping up the even tenor of my bee-keeping way I have consistently been in several different kinds of trouble, but at present I am going to confine myself to only one kind, principally because it has been a new one to me, but it has, in addition, affected other bee-keepers in this outpost of civilization, Vancouver Island; and the subject is *queens*.

Now, let it be understood that bee-keeping is conducted here on a rather small scale, and generally on the let-alone plan. With 20 hives I am practically leading the procession. The average man never dreams of examining a brood-chamber; most have never seen a queen, and I think I am the only bee-keeper on the island who has seen an egg in the cell. So when it comes to comparing experiences I am practically limited to my old rival in Illinois, Mr. Russell, who is now located about four miles from me. The other bee-keepers will report so many swarms, so many colonies lost during the winter, or died out in the spring, but are unable to give any reasons for any thing. The definite information I possess is, therefore, limited, but it is substantiated by corroborative evidence of a general character.

To state the problem, let me say that, in this locality, the most noticeable feature this season has been the frequency with which queens have either died or been superseded between the first of March and the end of August. The first date is fixed by Mr. Russell's purchase of hives; the latter by the

date on which I prepared my own colonies for the winter.

Mr. Russell bought in all nineteen hives. In the middle of May I invested in nine. A cursory examination indicated all to be in fair condition. Mr. Russell was over head and ears making changes and improvements on a ranch he had just bought, so the bees got scant attention until about the time I invested in mine; but he fed a little at intervals. The first serious examination we made together, and we discovered that eight of his nineteen were either queenless or absolutely extinct. On May 27 I overhauled my own, and found No. 1 to be queenless, broodless, and eggless. No. 3 was in fine order; and since it was the same style of hive as No. 1 I combined the two by putting the latter on top with a sheet of newspaper between, a small hole being punched in it. Every thing seemed from outside indications to be all right, so I left the combination alone until July 2, on which date I was startled to find that the hive must have been queenless for some time, as there was neither brood nor eggs anywhere.

Getting back to stand No. 1, on this was placed the brood-chamber from No. 7 after the second swarm had issued, the date being June 10. July 2 I saw lots of eggs; but on the 23d of the same month I found a little miserable queen-cell capped over, but no eggs in worker-cells. So the first queen, one of the season's raising, had been superseded. August 14 I found lots of eggs and larvæ. This queen was ultimately replaced by an Italian.

The queen of No. 5 was clipped May 25. A swarm issued June 20; but as I could not find the queen I gathered it in and hived on the old stand. The next day I saw the queen in the new hive; and as she had all her wings I deemed her a new one. A week later I found plenty of eggs in the cells. August 5 my note-book reports "Fine;" then on August 14 the entry reads, "Freshly opened queen-cell; few eggs." Eleven days later I found lots of eggs and larvæ—clearly a case of supersedure.

No. 6 was a hive I simply detested, as it was a jumbo into which a swarm had been hived without foundation, and, I fancy, without even starters in some of the frames. The result can be guessed at. I hate to describe it; but it may readily be understood it was impossible to pull it apart for investigation. It lagged behind in the spring, even with a little feeding; but by the middle of June it was a whopper with bees; but instead of coming up into the super, and working on the foundation, they proceeded to erect all kinds of creations on the top-bars of the brood-chamber. In the end I took a super and combs from another hive, placed on top of this one for a few days, then when a new queen arrived she was introduced into the super on the old stand while the hulking Jumbo was taken to stand No. 25. This was July 13, and on the 25th I decided to get rid of an eyesore; shook all the bees into a lower story with some scraps of comb fastened into frames, and put an excluder between the two divisions. August 5 I transferred the old combs into a regular hive, and on this occasion I saw the queen and commented that she was both big and dark. On the 14th, as I could see no eggs or larvæ I examined the ground in front and found the body of the queen.

No. 8 is a regular Langstroth hive. From the start it did well, so I pushed it hard to get lots of bees, and ultimately increase by division. June 28 it had a couple of shallow supers with eggs and brood in both. On that date I divided, leaving the brood-chamber on the old stand. Four days after, I overhauled the latter and was rather surprised to find no eggs in worker-cells—more so to see three recently opened queen-cells. July 6, still finding no eggs, I gave a frame from another hive. A month later, August 5, I saw lots of sealed brood. I am certain the old queen did not go with the supers when I divided.

July 1 a third swarm was hived on No. 12, and five days later it seemed to be in good order. On the 25th I found two empty queen-cells, but could not see a queen. August 6, as there was no trace of one, and the hive was weak, I combined it with another, the final result being satisfactory.

Thirteen is usually considered to be an unlucky number, and it was so with me last season, but no worse than many others. The hive was started with four frames with queen-cells on June 28. Examination a month later showed it to be queenless, so it was combined with another.

So much for my own experiences. Now for those of my friends.

About August 15 I helped Mr. Russell transfer eight of his hives to new frames, and, naturally enough, examined the combs before I started to cut them. We found two of the eight hopelessly queenless. With so much to do on his ranch, Mr. Russell had not looked into the hives for over a month, so I had no idea as to when the queens had disappeared.

About the middle of September I looked through about 20 hives for a friend, a man well up in years, who had been tempted to go into a line for which I think he is unfitted. I wanted to see if they were supplied with enough stores for winter, as he lost about a dozen the winter before by starvation. My inspection revealed two absolutely dead, with only a little honey in the frames; two queenless with a handful of bees and hardly any stores; four queenright with a few bees, and a few square inches of comb filled with honey.

Another bee-keeper reported one hive out of ten having died this summer through becoming queenless.

There is no disease of any kind in this locality so far as I can judge, as all combs look in first-class condition. My only explanation is a guess; namely, that last season being late and moderate the bees blamed the queens and tried to supersede; that the new queens were raised in miserably small cells, as most

that I saw were pigmies; that such wretchedly raised queens made a poor showing, and, accordingly, attempts were made to replace them, often ending in failure.

One thing I do know. I have requeened with Italian blood; seen that each hive had at least 25 pounds of stores on hand by September 20, and believe that next season's experience will not be a repetition of this particular kind of trouble.* But I am confident a new brand will camp on my trail.

Now for another variety of queen problems. Like mine, Mr. Russell's bees were of very dark hybrid stock; in fact, this is the prevailing style in this part of the world. Being dissatisfied with it, between ourselves he could not stand the stings, especially when they sought him out when he was cultivating in the strawberry-patch, and tried to stampede both him and his horse. Then he decided to Italianize, and about the middle of August he received 18 Italian queens from Mr. Moore, which were introduced by the system recommended by that breeder. There was one variation, however, that I fancy was out of the usual run. We had started to transfer eight of the hives the day the queens arrived, and after the operation was finished we placed the cage with the queen on top of the frames in the case of the transferred hives. Otherwise the proeedure was quite orthodox.

The honey-flow here stops very suddenly early in July. In 1908 it ended about the 10th, the season being a late one, so that June is the month of swarming. My first was on the eighth of that month, while the very last, and a third at that, was on July 1. The reader can, therefore, imagine Mr. Russell's surprise when, two days after the release of the queens, a swarm took place. He was busy with some carpentry at the time; but his better half happened to notice the commotion, and hastened to inform him that the bees were swarming. He was highly amused with the news. and poked a little fun at his wife, who, by the way, has always lived in the city until recently; and with an air of superiority he informed her that bees never swarm in the latter half of August when the honey-flow stops the first of July. But she insisted that he investigate; so, to humor her, he proceeded to the apiary, where he found a little cloud of bees circling in the air. In a little while they alighted on a red-currant bush, about a foot from the ground. The experience was both new and interesting, so he endeavored to count the bees and came to the conclusion that probably there might be 150 in all. The error, more or less, could not be a great one.

Two years ago in Chicago, Mr. Russell amused himself all the fall and up to January with a single-frame nucleus, a third and very late swarm, and he was delighted to think he would have a chance with the same kind of toy in such a mild winter climate as we have here. So he secured three shallow Hoffman frames with empty comb, and proceeded to hive the swarm in the usual way. In a few minutes the queen walked out and soared around in the air. He had kept a few of the old queens as reserve in nuclei, and never dreamed for a moment it was possible that one of his new queens was guilty of such unusual regal conduct. But as she gracefully circled around him, accompanied by her attendants, he had a chance to note her color and easy flight. In a few minutes all had vanished; neither by sight nor sound could he locate the pigmy swarm, so he decided he was minus a young queen and a few bees. But as he started off to resume his work he noticed some bees flying between the berry-bush, where they had first clustered, and a nearby prune-tree. Examining the latter he detected a small cluster among the leaves; so, getting a step-ladder, he investigated further. Sitting on the outside of the cluster he saw her majesty, so he proceeded to inform her in his plainest English that he had had enough of this unseasonable fooling, for the swarming season was now past, and Hallowe'en a long way off. To make his boast good he secured her and about a score of the bees in a tumbler, and for the second time introduced her to his idea of a comfortable home. She disappeared among the combs with a few bees; but the remainder, after wandering round for a little while, vanished one by one. An examination of the combs, to his great chagrin, showed that the queen had again eloped.

Disgusted he started for his work; but as he passed the currant-bush he found a small cluster on the old spot with the queen serenely sitting on the outside as before. Again he got the bunch in the tumbler and rehived the swarm, clapped on the cover, and started off to work, determined to ignore the very existence of the recreants. But they were on his mind, so in a few minutes he came back to find they had again fled. On the currant-bush were gathered a few bees; on the prune-tree a few more, the queen with this lot. He was now realizing his impotence; but, like the brave warrior of classical times, he had to address his opponent before entering into the contest, and he thus unburdened his mind: "This is the last time I am going to hive you, as you are only a toy, anyhow; and if you don't stay put you can quit and die, for death is surely your finish, as there is not a particle of food for you anywhere."

Then, carefully cutting the branch, he laid it on top of the combs and closed the hive. To keep the queen inside he obstructed the entrance with queen-excluding zinc, and now he felt he had her a prisoner for sure.

Next morning, as the combs were empty he prepared some sugar syrup and proceeded to the hive to give the swarm a feed. Removing the cover he was disgusted to find that not only the bees but the queen as well had vanished.

Mr. Russell's second experience occurred about two weeks later. One afternoon about four o'clock he was walking along at the back of the hives, and, happening to look

* This series of articles was written last fall.—ED.

down at the ground, he was surprised to see a small cluster of bees clinging to a weed. As he puts it he exclaimed, "I thought I knew something about bees, but mine are either going crazy or I am a bigger ignoramus than even Dr. Miller, who, once a week at least, says, 'I don't know.' Here is a damp day at the beginning of September; there is not a blossom in sight, as every thing is dried up on account of our long summer drouth, and yet you fools are swarming. If *you* are not crazy, I must be."

He secured a hive and three combs, cut the weeds loose, and hived the swarm. The bees were very drowsy, so he felt sure they must have been hanging for several hours; in fact, they had scarcely enough energy to crawl down among the combs. This swarm decided to stay put.

Wondering if any of his dark-colored reserve queens had turned foolish he went through the nuclei only to find that all of them were at home.

Why did these young Italian queens swarm? They were bought as untested queens from a very reliable breeder, so there can not be any doubt as to their having been properly mated.

Victoria, B. C., Canada.

[In our opinion, Mr. Todd has only partially struck at the real cause for the premature dying-off of the queens. The year in which these queens were reared was possibly, as Mr. Todd says, unfavorable for securing good strong vigorous stock. This might account for all the trouble; but we should be inclined to believe that the original parentage was not strong or vigorous. Possibly and probably a large part of the queens that died came directly or indirectly from one mother.

In our queen-rearing operations we have to be very careful in the selection of our breeders. Occasionally we will find one supposedly good breeder; but her stock lacks vitality. Sometimes a breeder will be so poor that her own queens will die off even before they are mated. The remedy in your case is to do just what you have done—import entirely new stock from some strong vigorous queen-mother having a reputation for raising good strong queens.

Referring to that queen that swarmed out so many times, carrying with her a little bunch of bees, we should be inclined to think that she was a virgin rather below normal size. The fact that she passed the perforated metal on her last escapade would strongly support that theory. When going out with her little bunches of bees she probably was simply going on her mating-trips.

If, on the other hand, she were a laying queen, and was inclined to swarm out on successive days, we would put her and her bees down cellar and keep her there for four or five days until she got over her foolishness. Before putting her out again we would clip her wings on one side. Occasionally a queen or a colony, we do not know exactly which, gets the fever of swarming out day after day. The only way to cure them is to shut them up, keeping them down cellar where it is cool, causing them to start building comb and rearing a little brood. If there were a comb containing plenty of pollen they may be fed a little while in the cellar with a thin syrup. This will start them to make preparations to keep house in good orthodox fashion. It has been recommended to give these swarming-out colonies a frame of unsealed brood; but such procedure fails too often to make it reliable.—ED.]

PRACTICAL INSTRUCTIONS FOR BEGINNERS.

The Conditions Under which Bees Build Straight Worker Combs from Starters.

BY E. D. TOWNSEND.

Although we use and recommend full sheets of foundation in wired frames, it may be well to consider how and when one can get along with starters only in brood-frames, as some may not want to use full sheets.

Bees build two sizes of cells in their comb-building. The larger size run about four to the inch, and are used for rearing drones and sometimes for storing honey. The smaller cells run about five to the inch, and are used for rearing workers and for storage. The bee-keeper should strive to get all-worker combs built; for, in spite of all the care that can be taken, more than enough drone comb usually appears. Of course, in case of an extra-fine colony that one desires to breed from, a solid drone comb can be given in order that there may be plenty of drones of this desirable stock in the yard.

It is a fact that bees under certain conditions build almost all worker comb; and it is also true that, under other conditions, a great deal of undesirable drone comb is built. For instance, a new medium-sized swarm, placed in a hive of a size that may be filled with combs and brood in about 23 days or less, ought to build worker comb mainly, although some of the last combs built may contain a few drone-cells. The secret seems to be in having just the right number of workers and just the right amount of honey coming in, so that the bees will draw out the combs no faster than the queen can occupy them with brood. As long as this condition lasts we should expect the bees to build worker combs. From this we see that, in order to get good results in comb-building from a natural swarm, this swarm should be of just the right size, and there should be a honey-flow of, say, three or four pounds a day.

We will suppose a large swarm is hived during a period when honey is coming in freely. At this time there is too much honey coming in for the best results in comb-building in the brood-nest, if the whole force of workers is compelled to do all their work in the brood-nest. The remedy is to put most of the workers at work in the supers. Most beginners fail in doing this; but the principle is to make the surplus receptacles more inviting to

the workers than the brood-nest, and the bees will immediately go up into the supers on being hived. Our comb-honey super with extracting-combs at the sides makes an ideal arrangement for this very thing.

It is plain to see that, if most of the honey being carried in is placed in the sections, where it should be, the queen will not be hurried to keep pace with the workers, consequently nearly all-worker comb will be built. The brood-nest should be filled with comb during the first 23 days after the swarm is hived, for the queen must keep up with the workers and lay in nearly every cell as fast as it is drawn out, or the bees will begin to store honey in the cells. When this condition arrives, the bees, on the supposition that the queen has reached her limit, and that the rest of the combs will be used for storing honey, begin to build the storage size or the drone-cells in the brood-nest. This is likely to occur in about 23 days after the swarm is hived; for by this time the brood is beginning to hatch out in that part of the hive where the laying began. From this time on, the queen has nearly all she can do to keep the cells filled with eggs where the young bees are hatching. This means that the comb-building part of the hive is neglected, and that the bees build store or drone comb to a great extent until the hive is filled.

It sometimes happens that a very late swarm will issue; and since the season is nearing its close, it is not possible for such a swarm to build more than five combs before the honey ceases coming in. We hive such swarms as usual, and in about two days five of the frames having the least combs built are removed and a division-board placed up against the remaining five frames, this five having been shoved over to one side of the hive. If a super is given such a swarm at the time of hiving, it must be a nearly finished one, as the bees will need most of their time to finish up the five combs in the brood-nest. If one has two of such five-comb colonies they can be united at the close of the season, so that there will be none but full-sized colonies to winter. A better plan than this for late swarms, or for any small after-swarms that one may have, is to hive them on full sets of combs taken, possibly, from hives in which colonies died the previous winter. This is a very good way to get such combs filled with bees, but some swarms hived in this way may need feeding for winter.

There are artificial ways of handling bees so that they will build good worker combs. I refer to the plan of shaking the bees into an empty hive, in the same way that a swarm is hived. If a colony is divided into nuclei of, say, two or three combs each, and each nucleus given a young queen reared the same year, such little colonies will build very nice worker combs; but the beginner will not be interested in this artificial way of making increase, for he should stick to the natural-swarming plan for his increase until such time as he has had experience and made a success of getting a crop of honey. In fact, there are many things to be learned before a beginner should take up artificial ways of making increase.

It is just a question in my mind whether there *is* a better or more profitable way of making increase in the production of comb honey than the natural-swarming method. In extracted-honey production, when the bees will not swarm enough to make up the winter loss, then artificial swarming must be resorted to.

SOME CONDITIONS WHERE BEES BUILD MOSTLY DRONE COMB.

Any colony found rearing drone brood in the brood-nest will, if a comb is removed and an empty frame put in its place, build drone comb. It can be depended upon, moreover, that a colony of bees wintered over, containing a queen reared the season before, or one older, will build drone comb until the time that it swarms. By this it can be seen that it is necessary to replace any combs, removed from a colony before it swarms in the spring or early summer, with an empty comb or with a frame containing a full sheet of foundation, or else drone comb will be the result. To be sure that a colony will build a large per cent of worker comb it is necessary to remove all the brood and to cause the bees of that colony to begin all over again, as in the case of natural swarming; or, as mentioned before, the colony can be broken up into nuclei, each nucleus containing a young queen.

Remus, Mich.

POWER HONEY-EXTRACTORS.

How to Change the Diameter of Pulleys if the Speed is Not Right.

BY E. M. GIBSON.

Perhaps I can write something that will be of benefit to Mr. R. V. Cox, page 363, June 15, as he seems to have trouble with his extracting machinery. If the belt slips, pulverize a small piece of resin and sprinkle on it while the machine is in motion, and you will have no further trouble in that direction; and if the extractor does not run fast enough, soak a piece of rawhide over night and sew it around the pulley of the engine while wet. Do a nice job of stitching, and have a smooth piece of hide, and it will shrink on tight and not slip. If one piece is not enough, put on more. It is a particular job to sew it on and get it smooth. The ends that meet should be halved and blind stitched. Better remove the pulley to do the work; and if you think you can not do a good job of stitching, take it to a harness or shoe maker.

It was different with me, for my machine ran too fast. I took off the small pulley of one of my engines and put rawhide on the engine-shaft. Then I put two thicknesses of harness leather on the pulley of the extractor of the other. One can see how hard it is for manufacturers to please all of us. My extractors start very quickly—much more

so than one could start a four-frame by hand, and I think much less time would be consumed in manipulating one eight-frame than two four-frame extractors.

As for breakages, I have had but one, and that was the band brake, which delayed us but a few minutes, as I put a piece of leather in its place. This worked nicely until I received a new one that the manufacturers kindly furnished me free of charge.

I have different helpers nearly every year, and my machines get some pretty hard usage, but not so hard as to let a filled frame drop into a basket; and if we did so by accident I would not only expect it to knock the bottom out of the basket but I guess I should look for it in the cellar bottom, no matter what make of extractor I was using.

Notwithstanding Mr. Cox's experience is quite different from mine, it is well to hear both sides, as many bee-men come to see my machines work, and express their satisfaction and determination to have one like them, and I do not want any one deceived. If others have had experiences different from mine it is well for those who contemplate buying to know it. I have always taken an interest in machinery, and perhaps might be more successful than one who never took an interest in it.

I believe, however, that every large producer of honey will in time have power-driven extractors, or at least the most of them. They are practical, and save time, money, and hard work; and those are three things that men are striving for. They are only waiting to see if they are a success or not, and no doubt many more would be using them now if they could get rid of their old machines. I was fortunate in getting rid of mine at a fair price. Of course, some will succeed while others fail with them as with every thing else.

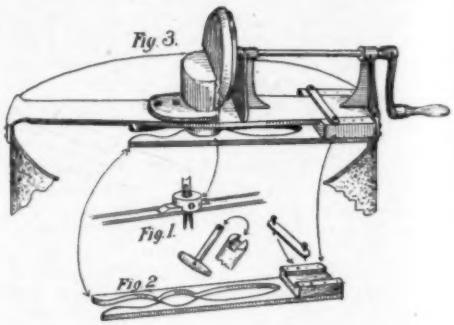
A man of whom I bought bees twelve years ago (he had kept bees several years prior to that time) told my neighbor that he knew of a good place to set some bees, as there was some kind of sticky weed grew there "that the bees could get to make comb of." I have my doubts about that man ever making a success of the bee business, either with or without a power-driven extractor.

Jamul, Cal.,

A HOME-MADE EXTRACTOR-BRAKE.

BY G. C. GREINER.

Since I have been the fortunate possessor of a two-frame reversible honey-extractor I have greatly enjoyed its use on account of its many good points. At the same time I have been forcibly impressed that the addition of a brake to stop or reduce the motion of the comb-baskets would be a desirable feature. I have used a brake of my own construction, with all my last summer's extracting, and found it a great improvement. It requires a little ingenuity and a few tools to make it. The first step is to prepare the revolving frame or reel. A hard-wood pulley, about 3 in. in diameter, has to be fitted around the little cast-iron hub that receives the reel-shaft. A shallow transverse groove on the under side of the pulley slips over the framework of the reel, and this, together with the set-screw that connects the gear-shaft and hub, keeps the pulley from whirling around.



See Fig. 1. To tighten the set-screw a special wrench is necessary. This is easily made by filing a notch in the end of a piece of ⅝-inch round iron or steel, and supplying the other end with a handle.

A pattern of the main part of the brake is shown at Fig. 2. The material I used is one-inch whitewood, which seems to answer quite well, although oak or some other hard wood might be more substantial. Fig. 3 shows the brake attached to the iron cross-bar.

When running the extractor I use my right hand to turn the crank, and operate the brake with my left. A slight pressure of the latter will stop or reduce the speed of the baskets, as may be desired, while the right hand does the reversing.

One point must not be overlooked. The circular opening, which surrounds the pulley and acts as brake-blocks, should, in its natural position, be loosely fitted so that it may not act as a self-brake. Even a little play will do no harm. The spring of the long narrow sides will admit of applying the pressure whenever desired.

LaSalle, N. Y.

[We have tried brakes on this principle; but in comparison with the street-car band brakes, such as are now used on all automatic reversible extractors, they lack sufficient power to do the work easily and quickly.—ED.]

A FIELD DAY IN MASSACHUSETTS.

THE Massachusetts Society of Bee-keepers, judging from a recent announcement, is a very progressive organization. There is to be a field day at the home of Henry W. Britton, Stoughton, Mass., on Aug. 7. An excellent program has been provided, as well as refreshments. Those in the vicinity would do well to attend.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

WHY DID THE SWARM ON BEING HIVED COMMENCE KILLING BEES?

Yesterday a large first swarm came out, and no sooner were they hived than they commenced dragging out and killing a lot of small-looking bees, which I suppose are young bees. I gave them a good smoking, but to no purpose. They kept at it all right, and are still killing them off, although I have smoked them every 30 minutes to-day. They left the hive, and, instead of going back to the old stock, find a new swarm. I have seen no old bees killed, but they have dragged out enough of those little short bees to make a good-sized swarm. I supposed smoking would always stop fighting; and why should a swarm fight itself? I am sure there were no bees in that hive when I hived the swarm, and I saw them issue—all from *one* hive.

These little bees, when dragged out, seem paralyzed, and crawl around, dragging their bodies for a while, and then dying. FRANK WHEELER.

Westfield, N. Y., July 6.

[Our first thought was robbers; but on re-reading we note that you state that "a swarm came out, and no sooner were they hived than they commenced dragging out and killing a lot of small-looking-bees." A swarm would not, of course, have any honey in the hive, and there could, therefore, be no robbing. There is one possible solution—that there were two swarms united together and the larger one numerically proceeded to kill off the members of the other swarm, for that is precisely what two lots of bees in a swarm will do sometimes. You say, however, that the bees were "all from one hive." As to this you might be mistaken. Again, you say the bees that were being made away with were "small-looking bees." It would be our impression that they were just as large as the others, but possibly, being a darker strain, they looked smaller. Or it might have been that one swarm was well filled with honey while the other one was on the verge of starvation. A well-filled bee looks much larger than one that has no honey in its sac.

You say that the little bees, when dragged out, seemed "paralyzed." They would be very much so if they had been stung by the bees of the superior force. We can not think it was any disease. If any one has any other solution to offer, our columns are open.—ED.]

BAIT SECTIONS SHOULD BE PLACED IN THE CORNERS OF THE SUPERS.

On page 378, June 15, Mr. H. B. Palmer says that he gets his supers filled more solidly by putting bait sections in the coldest part. Mr. Palmer's experience is the same as mine. Before adopting the shallow extracting-combs in comb-honey supers we placed a bait section in each corner of the super. Bees enter a super and begin work about as rapidly with the baits in the corners as if they were placed in the center. In the middle of, or, say, during a good honey-flow, we have found a few cells of honey fifteen minutes after putting a super on a hive, although that super contained bait sections in the corners only. There is no cold corner of the super that the bees will not occupy readily, providing drawn combs are given. Try it, Mr. Edttor, in two or three supers this year and you will never again write such a "cold" footnote as you did to Mr. Palmer's article. E. D. TOWNSEND.

Remus, Mich.

[When a man like Mr. Townsend indorses the scheme of putting bait sections in the corners of the supers we may well consider whether some of our text-books and "editors" should not be revised. However, we consider this a somewhat debatable question. Let us hear from others.—ED.]

KEEPING THE BROOD-CHAMBER FILLED WITH BROOD TO FORCE THE NEW HONEY INTO THE SUPERS.

I have a small apiary. The bees have plenty of honey to last them till they go to work. But there are a great many of them that I can't get to work in the supers. Do you think it would be a good idea to put sugar syrup in and let them fill the brood-chambers with syrup and put my supers on? Holly is my honey-plant. It blooms about the first of May.

Camden, Ark., March 15. R. C. JENKINS.

[The plan you propose is the same one that H. R. Boardman, of Collins, O., advocated a number of years ago. In brief, it was his idea to feed bees liberally on sugar syrup, to fill the brood-nest with brood and syrup, so that, when the honey-flow did come on, the honey would all go into the supers. His argument was, that sugar syrup was much cheaper than honey; and if we could trade the sugar for the honey we should be getting the big end of the deal.

Objection was made at the time, that the bees would carry some of this sugar syrup into the supers so that there would be a mixture of syrup and honey; but Mr. Boardman took the ground that, if the syrup were fed early enough, and were largely capped over before the honey-flow began, there would be no danger of its going above.

We know no reason why the general plan should not give good results providing the syrup does not go into the supers. Should it do so, the product, if placed on the market, would be a mixture of syrup and honey. If the national or State officers should get hold of it the honey would be classed as adulterated, and the producer fined. With our national and State laws as they now are, one might be running some risk if he fed too close on up to the honey-flow. If he fed liberally up to within a week of the expected flow, and then stopped feeding, he would probably have his brood-nests full of sealed stores and brood, and a heavy force of bees for field work.

If any one is now practicing the plan, or has practiced it to any considerable extent, we shall be pleased to have him tell us how it works.—ED.]

BEES AND NEIGHBORS.

I have a neighbor who is a crank, and his house is about eight or ten rods from mine, and my bees are about a rod from my house along the line fence next to the neighbor. He says I must move them. He has told me twice now. I don't want a lawsuit, and I don't want to move them unless I have to. Both places are in the country. Can he make me move them?

There used to be a bee-keepers' union for the purpose of helping one another that got into trouble.

Nottawa, Mich., July 3. E. A. WARREN.

[From all the facts stated in your letter we would urge you to move your bees. Where a bee-yard is next to a line fence the bees will very often cause trouble, especially if the field next to that line fence is being worked by horses. This trouble is more apt to come on when bees are flying heavily to the fields. Being interrupted in their flight they will attack horses as well as men. It is natural for horses to switch their tails vigorously when any fly or bee is buzzing about, and such action will be apt to infuriate one or more bees going to and from the apiary, particularly if the horses are in the direct line of flight. We always advise locating a bee-yard as far as possible from a cultivated field. Wherever practicable, put the yard behind a clump of trees or a high board fence, so that, when the bees rise to go to the fields, they will fly high enough to clear horse and man.

The bee-keepers' union still exists, but is now called the National Bee-keepers' Association. Mr. N. E. France, of Platteville, Wisconsin, is the General Manager.—ED.]

IS IT PRACTICABLE TO SHIP A FEW COLONIES A LONG DISTANCE?

I wish to move from here to North Georgia, and would like to take my bees with me. I have ten colnies. Would it pay best to ship them as they are, or would you take only one or two colonies?

Kerens, W. Va. C. R. MILLER.

[It would hardly pay you to move so few as ten colonies unless you have exceptionally valuable stock housed in new and modern hives. If, however, you are going to move a carload of household goods you can put the bees in the same car with other goods; but be sure to load the hives so that the frames are parallel with the rails, and secure them so that they will not be bumped about in the car. The covers should, of course, be removed, and wire-cloth screen nailed over the tops of the hives. If the colonies are very strong it would be advisable to put on an extra super, and then the screen, to give clustering room over the tops of the frames, otherwise there would be danger of the bees smothering. If you do not expect to send a carload of goods it would not be practicable to ship the bees by local freight; and to send by express would cost almost as much as the hives and bees were worth. It would be far better for you to sell the bees and buy new stock on arrival at destination.—ED.]

CHLOROFORM AND ITS EFFECTS ON BEES.

Some years ago you spoke about chloroforming bees. Will you please tell us how this is done? How long would it take to put a large swarm to sleep? Will they all fall from the comb to the bottom? Bee-stings are used as medicine. Do you know of any firm that buys bees for their stings? I have a few swarms of very vicious bees. I think they would put a whole army to flight. N. E. DOANE.

Breckenridge, Mich., July 12.

[Some years ago there was something said about chloroforming bees. Its action is very quick, for a colony can be stupefied in a very short time, so that the bees will drop off the combs down to the bottom of the hive. We presume your idea of chloroforming was so that you could extract the stings, or possibly kill the bees outright if they are too cross to have around. Messrs. Boric & Taffell, of New York, used to do a large business in buying stings by the thousand. You might correspond with these people.—ED.]

CHEMICAL FUMES IN PLACE OF SMOKE FOR CONTROLLING BEES.

I use something like a smoker, only it should be airtight. I use a sponge saturated with carbolic acid, creosote, and liquid smoke, also crystal ammonia. You can tell from what I have given whether it would hurt the bees or not. That is all I use, and for my part it has served me well. I have only six colonies, and it does not give me the best chance to test it.

Converse, Ind., July 13. J. F. MILLER.

[Nearly 25 years ago fumigators were made and used in England. These employed a preparation of creosote and carbolic acid. The great advantage claimed for them at the time was that they were always ready, and the fumigators always cold; but while they would drive back bees to a slight extent, just the moment the fumigator was set down the effects of the drug passed off. A colony that has been subdued by smoke stays subdued for several minutes; but the general verdict years ago was that the fumigators were by no means as effective as the ordinary smokers using an ordinary slow-burning fuel of some sort.

The combination recommended by Mr. Miller above may, however, be much superior to those fumigators that were tried in England. Perhaps some of our bee-keepers who are also druggists can test the general plan and give us a report as to how it works.—ED.]

POISONOUS HONEY.

I am in receipt of the following letter from Colombia. The matter contained therein is altogether strange to me, for, although I have lived in tropical countries, and been in intimate touch with bee-keepers in the same, I have never before heard of a case of the kind. If you will be good enough I should appreciate your dropping me a line on the subject, telling me what your opinion is.

The letter reads as follows: "The bees have been carrying to the hives some nectar of poisonous substance from some plant, and this has resulted in many serious cases of poisoning, often causing death. The country people say that this is extracted from a plant named the 'borrachera,' which has a white flower. Can you tell me if there is any method of testing the honey, and of neutralizing the poison, or an antidote for that particular poison?"—Isias Castro, Colombia.

Buffalo, N. Y., July 2. LA HACIENDA CO.

[If any one of our readers can give the *La Hacienda* Company any information, we should be pleased to have them do so.—ED.]

EUROPEAN AND AMERICAN BASSWOODS.

[After the article on page 442 of our last issue was in print, the following from Prof. W. J. Green came to hand:]

Mr. A. I. Root,—I should not like to have you publish my letter of the 5th without some modifications. Later observations lead me to believe that there is a wider variation in time of blooming of individual trees of both the American and European species of linden than I supposed. If you choose to publish my letter I should like to have you leave out the first four sentences and substitute the following:

"According to my observations the European linden blooms somewhat later than the American. There are, however, individual trees of the European which bloom quite early, and individual trees of the American which bloom late. The majority of the European I think bloom some days later than the majority of the American, and it seems to me that it would be a considerable advantage to bee-keepers to plant both species in order to extend the season." W. J. GREEN.

Wooster, O., July 14.

MAKING THE CANDY-HOLES TO QUEEN-CAGES SMALLER.

I beg to suggest a little thing which to me seems an improvement in the small Benton queen-cages. Set the drill so that, in boring the holes for the candy and the center-hole the opening will be just ¼ inch. This will enable a little softer candy to be used, and it will be kept in place better. As they come now the opening is too large. E. E. LAWRENCE.

Doniphan, Mo., July 8.

[We have tried out the plan of making only ¼-inch hole into the candy, but find that, when it is as small as this, either a bee or a queen will get stuck in the hole and die there, rendering it impossible for any other bees or the queen to get to the candy. If a queen lodges in the hole, of course she dies. If a single bee gets stuck there, that prevents the other bees and the queen from getting at the food, and of course they all starve. We found as a matter of necessity we had to enlarge the hole so that two or more bees could get at the candy at a time.—ED.]

HOW TO GET A SWARM CLUSTERED IN AN INACCESSIBLE PLACE.

When a swarm issues and settles on the trunk of some tree, or on a limb out of reach, tie an old tough brood-frame on the end of a long pole and shove the frame close to the cluster. When a part of the bees have gone on the frame, move it a few inches away and smoke the rest of the bees that have not yet gone on the frame. If it is impossible to reach the bees with the smoker, brush them away with another pole, when they will fall to the ground, but immediately return and go with the bees on the frame. The rest of the work is easy, for the frame can be simply carried to the hive selected and the frame put in, in the usual way. G. G. FALL.

Milton, N. H.

[The plan here described is entirely feasible. We have used it many times with entire success.—ED.]

CAN WE REQUEEN BY GIVING A RIPE CELL AND NOT KILL THE OLD QUEEN?

Having a hive of black bees that were not satisfactory we gave them a queen-cell in a cell-protector. They swarmed in a week, and we have the yellow queen in the old hive. We gave a swarm a queen-cell at the same time we put a cell in No. 1. This swarm was also black bees. We find our yellow queen on her job in this case also. Now, if this way of requeening will work it will suit me. In what per cent of cases will it work?

Thompson, Tenn., June 19. W. H. ARNOLD.

Later, June 21.—We find that colony No. 2 has swarmed just as No. 1 did; but we have an Italian installed in both cases by the simple introduction of a protected cell, in the presence, in both cases, of queens. This was 100 per cent of success, for we saved the first swarm, and neither was worth saving without better queens. W. H. A.

[As we understand our correspondent, his plan of requeening is to give a ripe cell to a colony without killing the old queen already in the hive, assuming that the young virgin, when she hatches, will supersede the old one. If this is his plan it would be our opinion that it would fail nine times out of ten. The probabilities are that the old queen would discover the cell before it had hatched, and she would soon make short work of it unless she herself were about to fail and the bees protected the cell, as they will do sometimes.

If, on the other hand, the old queen failed to discover the cell, she would, very likely, find the young virgin, and before she would be active enough to put up a good fight the old queen would put the young lady out of commission in short order; but a vigorous virgin just returning from flight, that will sometimes go into a hive by mistake where there is a laying queen, is more than a match for the reigning mother, and may displace her. This occurs very often; but a virgin just hatched would be no match for a normal laying queen.

To answer the question directly, then, we would say that, generally, the giving of a ripe cell only for the purpose of displacing the old queen would not succeed. If we had a colony of black bees, and it was very difficult to find the old queen, we would run the bees through perforated zinc and catch the queen on the metal. We would then give a ripe cell.—ED.]

WHERE DID THOSE BLACK DRONES COME FROM?

I have a colony of golden Adel bees. This spring they ran a little short of stores; so I put a body containing combs of honey on top of them and a queen-excluder between. I left them that way for about two weeks; then I looked at them one day and found quite a lot of drone brood in the upper story, and, to my surprise, I found quite a lot of black drones in the upper story. How did those black drones get there? and how did the brood get in the upper story. These top combs were kept over from last year. There are black bees in the neighborhood.

A SWARM THAT DID NOT GO WHERE THE SCOUTS HAD BEEN WORKING.

One morning, about six o'clock, we saw some bees working in a crack in the siding at the end of our house. They worked quite busily for a while. About eleven o'clock I went out on the porch and found there a swarm of bees circling around the house; so I went out, when they began to drift away; and as I followed them they went to the woods and clustered on a large oak-tree, and, after a while, they went into a knot-hole. It would seem that they intended going into the house.

Pierceton, Ind., June 25. JACOB GARBER.

[The presence of black drones among your yellow bees could be explained on two grounds—first, drones of any colony are tolerated anywhere. If there are black bees in your vicinity it would be perfectly natural to find black drones in your hives with yellow bees. Second, drones from a queen will very often vary in markings. We have seen drones from an Italian queen that were quite dark-colored, and others from the same queen light-colored. The presumption is, however, that the black drones you find in your hive of yellow bees came from other colonies in your vicinity.—ED.]

A QUESTION IN REGARD TO INTRODUCING.

If one should set an empty hive in the place of a full one, taking one frame of brood with the queen on and putting it in the empty hive, and then set the full hive on a new stand, would that full hive be an extra good place to introduce a queen? Or would it be better to move the old queen to the new stand and introduce the new queen on the old stand? How long before introducing should the change be made? and at what time of the year? W. C. BROWN.

Camden, N. J.

[As a general principle, we may say, when forming nuclei for the purpose of providing places in which to intoduce queens, each nucleus should be put on a new stand. In 24 hours all the old flying bees will have gone back to the old stand. You may now with camparative safety introduce a queen to the nucleus, because the young bees will usually treat a strange mother very kindly. To answer your question directly, we may say that the plan you propose is in conformity with the above-stated principle. You will also see that it would be wrong practice to introduce a queen to the hive on the old stand, because it would have mainly old bees.—ED.]

A TEST FOR PURE ITALIANS; THE MARKINGS OF THE DRONES OR THE QUEEN NOT A CRITERION.

A neighbor had last year a fine colony of "hybrids" which I advised him to Italianize. He accordingly sent to a prominent breeder for a queen, which came in due season, and was successfully introduced. The workers were beautifully marked, and the colony wintered in fine order; but when the drones began to make an appearance, about a third of them were as black as any in a native colony. The remaining two-thirds were as finely marked as are the workers. Can you put on your thinking-cap and tell why this is so?

Armstrong, Ia., July 1. W. O. ATKINSON.

[The test of pure Italian bees is not in the markings of the drones but in the worker bees. The drones of a pure mother may vary all the way from a quite dark color to a light yellow; but the *worker* bees themselves must be uniformly marked. They must have not less than three yellow bands; and while a fourth or fifth may show on some bees, yet these extra bands do not show typical Italians, but, rather, "sports." In the same way the queen-bees from a pure mother will vary almost as much as the drones.—ED.]

WHAT TO DO WITH SECTIONS CONTAINING A LARGE AMOUNT OF HONEY-DEW.

This year the bees have gathered so much honey-dew that it has made the early crop of white honey unfit for table use. We have about 600 sections; and to offer it for sale would ruin our trade. The sections and combs would be a valuable item if I had them emptied; but as I have been working for comb honey only I have no means of emptying them except feeding back at the entrance, which is much too slow.

Elkin, Pa., July 16. W. A. STEWART.

[While you can extract the honey out of the sections and melt up the combs, your better way is to cut the combs out of the sections and melt them up. A capping-melter will do this work very nicely, although any double boiler will answer very well providing you know how to do the work. The article on p. 390, July 1, written by H. H. Root, shows the whole process.—ED.]

BEES DO NOT INJURE SOUND PEACHES.

The bees were very thick on the peaches of one small tree here, even five or six in a hole in some of them. I picked every peach that was bruised or injured in any way. Upon visiting the tree the following day the bees were flying quite thick among the branches of the tree. By watching I found they did not trouble the peaches. There was one peach that they kept crawling over, and on examining I found one end was soft but the skin was not broken. It was the peach-rot and not the bees that injured the fruit.

Newburyport, Mass., Feb. 15. H. J. FOWLE.

[Yes, it has been proven over and over again that bees will not molest sound or perfect fruit. Peach-rot, or insects with sharp cutting jaws must attack the fruit before the bees will notice it.—ED.]

THE WAHOO-TREE.

Is the basswood-tree the true wahoo-tree or not? If not, what is the difference? I can not find the word "wahoo" in Webster. A. M. HENDRICK.

Silica, Ark., June 28.

[The "wahoo-tree," só called in some parts of the South, is another name for one of the basswoods—*Tilia heterophylla*. All the different species of *Tilia* yield honey. Whether the *Tilia heterophylla* is as good a honey-plant as the *Tilia Americana*, we can not say—probably not. The last mentioned is usually the producer of the honey known as basswood on the open market. There are two or three other species—*Tilia Europœa* and *Tilia argentea*, very often called the silver-leaf basswood. We have a specimen of one of these growing on our premises. The leaves are very dark green, the under side having a silvery-white or grayish look.—ED.]

WHY WAS THE COMB CUT DOWN TO THE MIDRIB?

I have a colony of bees that prepared to swarm by raising drones and starting queen-cells. I then placed an empty shallow extracting-super under the brood-nest, which is an eight-frame Langstroth hive having a shallow super almost full of honey on top. This jutting super underneath stopped swarming all right; but here is the point: The bees cut all their combs down to the foundation in the brood-apartment, not working in the shallow super below. The colony has a good queen. This cutting down takes place as soon as brood hatches out. The combs are old, and have no mold on them, which may have caused them to do this. Two weeks later they are starting to build these combs up again. May be some GLEANINGS readers can tell why they do this.

WHERE DID THE LARVÆ COME FROM?

Here is another one: I formed a nucleus, taking four frames out of a hive which was superseding the queen. On these four frames I left two queen-cells, one hatched, and I used the other cell for another purpose. The queen was lost in mating. There was no brood left in this hive except what was capped after the queen was lost. I found eight queen-cells started. Where did these eggs or larvæ come from? No other larvæ or eggs were in this hive when cells were found.

Portsmouth, O., July 26. A. W. ACKERMAN.

[Bees will gnaw comb down sometimes when filled with old pollen or when they are spaced too close. They will also do it under normal conditions in patches or little at a time, and rebuild; but under conditions you name, when they tore down all the comb to the midrib, we are frank to say we don't know what should have caused them to do it.

As to your second question, there are two ways for accounting for the eggs: First, there might have been eggs or larvæ in the hive you did not see; second, bees, in a few cases that seem well authenticated, have been known to steal an egg or two from another hive. From what you say we should be inclined to believe that the cells you refer to were supplied by the last method.—ED.]

OUR HOMES

BY A. I. ROOT.

If a man die, shall he live again?—JOB 14:14.
Man lieth down and riseth not: till the heavens be no more, they shall not awake, nor be roused out of their sleep.—JOB 14:12.

Dear Friend Root:—I fully expected to see you on your visit in Florida last winter; but a long illness, brought on by overheating in fighting forest fires, and then catching cold, pretty nearly finished me up, and even yet I am not back to my normal condition.

I want to commend you for your article on pp. 382, 383, on law enforcement. The breaking down of all authority in our homes is going to be the ruin of the country. This lawlessness begins in our homes with the babies before they are six months old; and unless there is a radical change we are doomed. The lynchings are only another manifestation of the same spirit. I know a family of children, bright as dollars, but without discipline. They do what they please, and do it *when* they please — no burdens, no responsibilities. The oldest boy has been charged with several offenses, but the parents have always shielded him, and recently he was indicted for breaking into a store. They came to me to shelter him from the officers. I said to them, "I can not make myself a party to any such thing. Go like a man. If you are guilty, take your punishment like a man, and then be a man the rest of your days." But the father advised differently, and now the boy is a fugitive; and unless he turns a new leaf he will end in prison. But the parents resent any suggestion that the children ought to be at work, and busy, and so it goes. I tell you, after man sinned God knew what was best for him, and put him to work; and no greater curse can befall a boy or girl than to be left without knowing how to do good honest sweating.

I want to call your attention to an expression on p. 183—"Our fathers and mothers are dead and gone," and the rest of the paragraph. I am sure your feelings can not be trusted when you teach that the dead are watching, and interested in our labors, for God says, "His breath goeth forth, he returneth to the earth; in that very day his thoughts perish."—PSALM 146:4. "For the living know that they shall die; but the dead know not any thing, neither have they any more a reward, for the memory of them is forgotten; also their love and their hatred and their envy are now perished, neither have they any more a portion for ever in any thing that is done under the sun."—ECCLESIASTES 9:5, 6. "For in death there is no remembrance of thee; in the grave, who shall give thee thanks?"—PSALM 6:5. "His sons come to honor, and he knoweth it not; and they are brought low, but he perceiveth it not of them."—JOB 14:21. So it can not be possible that our dead friends are interested in what we are doing. The doctrine of natural immortality was taught by the enemy when he said, "Thou shalt not surely die;" and this falsehood of Satan has been the basis of every false religion from that day to this; and now in the closing scenes of this world's history, when Satan will appear as an angel of light, and do many wonderful miracles, every soul not anchored on the word of God will be swept from its feet. "God *only* hath immortality"—see I. Timothy 6:14—16; and we who are faithful will receive it at the second coming of Christ, and we obtain it by faith in the righteousness of Christ; and faith is to believe God's word, not Satan's falsehoods.

Pardon me for thus criticising; but I want to see you on ground that you can maintain, and that is the Bible — the word. It is truth; and truth sanctifies, not error. I read your articles with great interest. You reach a vast audience, and I want your teachings to be sound to the core.

Bowling Green, Fla., June 30. IRVING KECK.

Many thanks, my old friend, for your strong endorsement of my plea for a better enforcement of the laws of our land. It does me a lot of good to see that you and I agree so fully, not only in regard to the enforcement of law throughout our land but the enforcement of it in the home, with the child as soon as it is born. Now, it may not be worth while for us to spend much time in regard to what shall take place with us between death and the day of resurrection, yet I think a brief and friendly discussion of the matter will do us both good.

There are certain things in the scriptures that God seems pleased to reveal very fully and explicitly. There are other things that do not seem so clear, and upon which God-fearing people do not seem to agree; but, aside from the testimony of the scriptures, the great Father seems to have implanted certain impressions within us that operate like instinct. As an illustration, it seems to be made clear and plain to at least most of us, when we reach maturity, that we should get married and have a family. And this truth seems to be plain and clear to those who have never seen the Bible and do not know that there is one. There are other duties and responsibilities that seem to be imprinted on the whole human family—perhaps not so plainly on some as on others. Without any teaching from the Bible or Christianity, every human being who reaches man's estate feels the responsibility of caring for his wife and children. He knows what is manly and honest and true. Some of these impressions, that are really a part of our very being, do not all come to us until late in life. I am conscious of feeling impressions, as I approach three score and ten, that I never had before. I believe my judgment in regard to certain things, say those concerning the welfare of our nation or State, is better than ever before in my life. A man of mature years generally knows what to do in case of an *emergency* better than a younger one. I hope my younger friends will not take exception to this statement. When I was a child I was very bashful. I was afraid to approach strangers; and for several years, when I was a young man, I lacked courage. I was afraid of death; but when I became a Christian, and recognized that every thing is in God's hands, it gave me more courage; but not till recent years have I been able to look coolly and calmly on death.

It was my task, not many years ago, to inform an older brother of mine that he had only a few years and perhaps only a few months to live. The doctor asked me if I thought it would frighten him to tell him the truth. I told the doctor I thought not; and when I explained the matter to that brother he said, as I rather expected he would, and he said it with a smile, "It does not worry *me* any. I am ready to go at any time." Now, this brother, like myself, had learned to take things coolly and quietly in his old age.

Men of education and culture, men of broad experience in the affairs of the world, *ought* to have good judgment. Their opinions ought to be worth something.

Now, I have sometimes thought I should like to be present at a convention or congress of the best and broadest minds that this world affords. I should like to have a frank expression of opinion in regard to the matter of what becomes of our friends, or, to come closer still, what becomes of *us* after death. My impression is that instinct ought

to tell us a little *something* about it. But perhaps I am mistaken. It seems that God has not seen fit to reveal very much through his sacred word as to what happens just after death; and it may be that in like manner he has not seen fit to reveal through instinct what happens or becomes of us when this form of life is ended. On page 183, to which friend Keck refers, I suggested that our fathers and mothers are probably looking down from their heavenly home and witnessing our stumblings, troubles, and triumphs here in this world of ours.

In regard to the quotation from Psalms, I had always understood it to mean that our worldly thoughts and aspirations perish with this body of flesh.

In regard to the one from Ecclesiastes, perhaps I am not exactly orthodox right here, but I think I shall have to confess that I have never considered Solomon ("the wisest of men"), especially in *Ecclesiastes*, as very good authority. In fact, it commences by saying, "all is vanity." Well, I am not surprised. Any man with a thousand wives, and every thing else that money can buy, would be very likely to get soured on the world sooner or later. Where he says, "Neither have they any more a portion for ever in any thing that is done under the sun," I have always had a sort of feeling that Solomon was not very good authority.

The next quotation from the Psalms, I should understand as reminding us that the time to remember and give God thanks is before we come down to sickness and death.

The quotation from Job I should understand much in the same way. In the second one of our texts, although I have given it a place, I would again take the liberty of suggesting that Job was mistaken. In the 38th chapter the Lord replies to him in a way that seems to me was a reproof. He says, "Who is this that darkeneth counsel by words without knowledge?" Again, in the same chapter, verse 17, the Lord says, "Have the gates of death been opened unto thee? or hast thou seen the door of the shadow of death?"* Perhaps I might say to friend Keck and others, that, since I have expressed some views on this subject, a great deal of literature has been sent to me. I have spent considerable time in examining it—more especially the way in which this very thing is thrown at us by the enemies of Christianity. I do not and never did believe in everlasting torture by fire and brimstone or some other agency. While I confess the teachings of the Bible are in this respect by no means clear to me, I am abundantly satisfied that the patriarch Abraham was correct when he asked, "Shall not the Judge of all the earth do right?" When Jesus said to the thief on the cross, "This day shalt thou be with me in paradise," I can see no reason, even after I have read pages of explanation, for understanding it in any other way than that Jesus meant that that very day (perhaps before the sun went down) he would be with the thief in paradise. It has been explained to me several times that paradise does not mean heaven. To this I reply, that if it shall ever be my privilege to be with him who said to the *winds* and the *waves*, "Peace, be still," *that* will be heaven for me. In the old Gospel Hymns there is a hymn, 13, that was a great favorite with my old father before he died, and I want to quote here the first and last verses:

I know not the hour when my Lord will come
To take me away to his own dear home;
But I know that his presence will lighten the gloom,
And that will be glory for me.

I know not the form of my mansion fair,
I know not the name that I then shall bear;
But I know that my Savior will welcome me there,
And that will be heaven for me.

And the concluding chorus, it seems to me, sums it up better than human language has ever done before. In fact, this hymn, with the chorus, is one that I have often sung over and over again when off by myself:

And that will be heaven for me,
Oh! that will be heaven for me;
But I know that my Savior will welcome me there,
And that will be heaven for me.

When I say this I have no quarrel or controversy with anybody who understands it otherwise. Let me digress a little right here.

Not very long ago I was told that many theologians of the present day consider the book of Genesis as only an allegory or parable, and that quite a good many of the higher critics now take the ground that no such persons as Adam and Eve ever lived, and that the Bible did not intend us to take it as a fact. I have heard sermons that seemed to drift that way; but when it comes to suggesting that no such person as Abraham ever lived, I feel like getting up and leaving the crowd that wastes the precious moments (say at the Sunday-school) in any such unprofitable discussion. Years ago I sought in vain for comfort and rest in reading infidel books; but no peace or happiness came to my soul until I read and accepted the Bible as God's word. In considering this matter I think of the couplet from the pen of good old Dr. Watts:

Is this vile world a friend to grace
To lead me on to God?

And I would class all such discussions as belonging to the "vile world" that the poet had in mind when he wrote those words. The suggestion that the Bible, or any part of it, is not true, or is a piece of fiction, would never "lead *me* on to God." Nor do I believe it would ever lead anybody else "on to God."

Now, after this digression let me say that I prefer to believe Jesus did stand in para-

*Friend K., in regard to your closing quotation from Timothy, perhaps some of our D. D.'s, if they see my answer, will think I am floundering in deep water; and if you will excuse me I suggest that may be *both* of us are in the same boat. Now, Paul, in that 12th verse of that same chapter, enjoins Timothy to "lay hold on eternal life." I have supposed "eternal life" there means immortality; and in the 16th verse, where it reads, "God only hath immortality," you do not give the whole of it. The rest of the sentence in connection with this would imply to *me* that God only has that higher form of immortality "which no man can approach unto."

dise with the penitent thief on that very day, just as the New Testament states it.

Let us now consider for a moment the opinions of the great men of the present day, say the great missionaries. It was my good fortune to be intimately acquainted with Dr. Ament, the great Chinese missionary mentioned on page 23 of our previous issue. Mr. Ament was for several years the pastor of our church here in Medina. I have had long confidential talks with him. After his great work in China and his return to America I had confidential talks with him again. I know what his opinion was, at least in outline, of the future after death. By the way, I think I have read in some of the magazines that Dr. Ament did more to bring heathen China out of the darkness of heathenism into the light of the present-day civilization than any other man. Dr. Ament is dead and gone. A little pamphlet, "In Memoriam of William Scott Ament," has just been printed, and I wish to make extracts from three celebrated divines who wrote articles for that book.

In closing I have the sense of failure to express the significance of Dr. Ament's work and character. I have asked others to supplement my words; but I wish to say for myself that, with the passing of this friend to the other side, I have lost the precious consolation of a true earthly friend in time of despondency. I have lost a high note in the call to noble living. I have lost a great inspiration to hard work and sacrifice for the Master. Lost these, did I say? Nay: they are only removed from sense—idealized, spiritualized—for our friend has but crossed a wider sea than the Pacific; and as he entered the further Golden Gate the breath of the eternal morning on his bewildered brow has cleared the clouds that lowered over his mental life. When he left us he scarcely recognized his closest friends; yet we believe that now in the radiant light of eternity, with clear vision and sympathy unabated, he looks on us with the same kindly loving interest as of old, and that he also sees and knows the loved Master for whom he wrought so long and faithfully — yea, and for whom he longed. Let us rejoice with him that the longing is now satisfied, and that his life is hid with Christ in God.—REV. G. D. WILDER.

It seems to me standing here that he should yet be in our midst, a man in the very prime of life; a man who had the knowledge not only of the written but also of the spoken Chinese language. *We believe that he is doing higher work now, and in due time the reason of his removal will be made plain to us.* And although the church below seems to have been weakened by parting with one of its ministers, yet it will be seen that it is not weakened thereby, but strengthened.—REV. J. WHERRY, D.D.

We have prayed that his life might be spared for future service in the work that had consumed the heart and strength of his mature manhood. He does not return, for the loving Father has plans that reach beyond our narrow vision. His work is not ended. His service has only been transferred to another field, to be continued without pain, fatigue, or misunderstanding. With a broader vision and boundless horizon his strong personality will ever have unlimited scope for activity.—REV. H. H. LOWRY, D.D.

In the second one I have put a sentence in italic, as follows: "I believe he is doing higher work now, and in due time the reason of his removal will be made plain to us." The word "now" would refer to 1909. The writer, Dr. Wherry, evidently believes that the activity, at least of great reformers, does not end with death, and I believe most orthodox teachers accept this as the teachings of the Bible. During the life I have lived, I have seen many busy good men called off suddenly. I have known those who have made great progress in arts and sciences and inventions of the world. Some of them have marked peculiarities. I recall to mind vividly one friend who was very emphatic and abrupt. He was a pusher—yes, a vehement pusher—and he accomplished a lot of things that would never have been done at all if he had not done them. This vehement man had several clashes with other workers here in our factory, and I frequently had to interpose. One night something had broken down that would prevent us from starting on time in the morning. This friend was in poor health, but I found him away back in the lower basement repairing a pulley. He was not only in poor health, but well along in years. I asked him if some younger man could not do that fatiguing and difficult work. He said he supposed he could, but nobody else wanted to do it. I inquired about his health, and asked him if he did not feel very tired in working so late. He replied something as follows:

"Mr. Root, I do feel pretty tired; and I am subject to a heart trouble that may take me off any minute. But while God lets me live I do not propose to shirk responsibility."

I do not think his work that night did him any particular harm, but in less than one year he was suddenly taken away. For quite a time I missed his positive, vehement, and sometimes aggressive ways, and I asked myself the question if it was really true that this man with his peculiar, vehement, positive, assertive temperament was suddenly "cut off," or "snuffed out," as somebody has expressed it; and I decided, perhaps with that sort of instinct that God has implanted in us all more or less, that it did not seem reasonable or true that my friend Gove had been brought to an abrupt stop.

Let us consider the man Edison for an illustration.* I have followed him from his childhood. He has done an immense service to the world. He will probably die before a great while—at least if he keeps on working as he has been doing all his life. Now, is it reasonable to think that his researches end with the termination of his life here? Edison has, by his indefatigable labor, opened up to the whole wide world new and previously undiscovered territory in the realm of science. He has pushed out into God's domain where no other man has trod, and he has opened up to the world the fact that there are *still* unexplored regions in the lines of science and electricity that nobody ever

* Edison has given the whole wide world a glimpse behind the curtain of nature. We stand appalled as we look into the view he has opened up. Years ago, when I was a boy, we had "infidels," as we used to call them, who claimed that there is no God, and, further, that there is no need of one. But such men have, thank God, dropped out of sight. We do not see them now nor hear of them. All mankind, at the present time, seem to agree that there is some great personality who knows all about these hidden forces that mankind is just now exploring and opening up; and the question comes up again and again, "Shall we, some time in the future, get a glimpse of the domain that is now hidden by the confines of human life?" Is it in God's plan to set us free and give us a knowledge and comprehension that we may know him and his mighty works? Paul says in the 13th chapter of I. Corinthians, 12th verse, "For now we see in a mirror, darkly; but then face to face."

dreamed of until he came into the world. I do not mean to say here that friend Keck teaches annihilation for such men; but if I understand him he seems to intimate that we shall be cut off, or remain quiescent, for at least a period, from our activities when we are called away.

Now, dear friends, in what I have said, God knows I have not been trying to push my ideas in the place of some others. I have just been telling you or suggesting to you how it seems to me. Just recently the editor of the *American Issue*, Dr. J. C. Jackson, has been cut off suddenly in the midst of the great work of pushing the Anti-saloon League and local option. When his health was failing, and I believe not many days before he died, he gave utterance to the following, and I do not know of any thing else to commend to you in closing better than this:

On several occasions, when speaking to the writer concerning his belief in immortality, in discussing two different ideas of the future life, one of which he felt sure would prove to be correct, he repeatedly said in substance: "Whatever form life after death may assume, I am content. Back of it all I believe there is a great infinite benevolence, and that is sufficient to my mind to guarantee that whatever comes after death is best and right." He had no fear of death or the great beyond. There were many questions and problems connected with the mystery of life beyond the grave which his great mind could not solve to his satisfaction; but he was too honest to profess any conviction which he did not fully have, and time and again he declared that such questions were, after all, of least importance, while the problems of life and the present are of vital and supreme concern.

Just a word about the suicides that are getting to be more and more frequent. God forbid that we, especially the Christian world, should say any thing or do any thing to encourage this terrible epidemic. So far as I have been able to discover (and I have talked most earnestly with some who were contemplating suicide) it has been resorted to by those who believe that death ends all. They take their own lives with the idea in mind that they can thus in a moment discharge every form of debt and obligation both to God and man. Any teaching that would encourage a man to kill his wife and children, and then commit suicide, comes from Satan and not from God.

We can not for a moment believe that there is any thing in the Bible, in instinct, reason, or common sense that would encourage self-destruction. It certainly can not take a criminal (for a crime it is, and a most terrible one too) into the presence of Jesus or to paradise or to heaven. I should say it takes him direct to the arms of the evil one who has, since the beginning, been working for the destruction of mankind. The suicide goes with him to his abode; and that abode I need not name.

"BACKWARD, TURN BACKWARD"—A SINGULAR COINCIDENCE.

About the time of the birth of Huber's girl baby I came across the poem called "Backward, Turn Backward, O Time, in thy Flight." I began to inquire among my friends in regard to the author. Meanwhile somebody had made the baby's mother a present of a book entitled "A Mother's Year." In this book are selections of poetry for every day in the year. On turning to page 102 we find the birthday poem for June 20 (the *very day* "Miss Katharine" was born) is the following:

Backward, turn backward, O time in thy flight;
Make me a child again just for to-night.
Mother, come back from the echoless shore—
Take me again to your heart as of yore.
Kiss from my forehead the furrows of care;
Smooth the few silver threads out of my hair;
Over my slumbers your loving watch keep—
Rock me to sleep, mother, rock me to sleep.

The advocates of telepathy might claim this for an illustration; but it strains one's imagination somewhat to suggest that the verse was impressed on my mind, even *before* the little lady's birth or before she had, in fact, selected the particular day on which to come to "Rootville." The proverb, "Coming events cast their shadows before," might help us out a little.

DR. MILLER'S LETTER TO MISS KATHERINE EVA ROOT.

My dear Miss Katherine:—I have just heard of your arrival at Medina, and hasten to write you. I didn't write you at your former address, as I didn't feel sure that the postoffice regulations in heaven would admit letters from a place so far away as Marengo. I'm glad you've come to so nice a place. I must say you have shown excellent taste in your selection of parents; for, let me tell you, there are parents and parents.

Now I want to advise you confidentially to use every speck of influence you have to get your father to change his morose manner. I know that your smiles are very compelling, and it would be a great thing if you could get the old man to smile once in a while. He's not really bad at heart. He's only got into a glum sort of way.

Say, have you met A. I. Root? He's a caution. Probably about the first thing he does will be to try to get you to sign a pledge never to smoke cigarettes. Don't you do it unless he gives you a smoker. May be if you hold off a little he may do still better.

Have they put you on the lean-meat diet? or does A. I. want you to eat apples? Don't swallow the seeds whole.

What do you think of the new style of feminine headgear? Isn't it the limit? I've a whole lot more of news to tell you, but I must stop and write Straws.

Bring the old folks with you and come and see us.

Yours as ever,

Marengo, Ill., July 17. C. C. MILLER.

POULTRY DEPARTMENT

BY A. I. ROOT.

POULTRY SECRETS, ETC.—$500 FROM 12 HENS IN ONE YEAR.

One of our subscribers has mailed us a poultry-book having on the front cover the following legend:

PLANS, GUIDES, ETC., TO REALIZE $500 YEARLY, WITH 12 HENS
BY UTILIZING HORSE OR MULE'S STABLE MANURE;
ALSO MAKING HENS SIT SIX DAYS INSTEAD OF TWENTY-ONE.
A. Corbett, Inventor.
Professor of Gallino Culture Science, of Chicago, Ill.
FORTY-FIVE MEDALS, ETC., AWARDED.
PRICE $2.00.
CUPPLES & LEON .˙. .˙. .˙. PUBLISHERS .˙. .˙. .˙. NEW

The title of the book took hold of me at once, and the first thing I did was to look at the title-page and see when it was printed. There was no date anywhere—not even to the preface, and I believe I have scanned every one of the 172 pages. But, strange to tell, the *pages* in the book are not numbered. A considerable part of it is occupied by testimonials from some thirty or forty well-known agricultural papers, or papers that *were* well known thirty or forty years ago. I suppose the author did get 45 medals from as many different agricultural societies (for his "discovery" (?)) in times past; but when that was, nobody can tell. I wrote the lady who sent me the book, asking her where it was advertised at $2.00 a copy. She said she saw it in Montgomery Ward & Co.'s catalog, but she said the price was only 25 cents. Well, if Montgomery Ward & Co. *are* selling a book that is perhaps 40 years old and letting people suppose it is a modern work, I do not think we should censure them very much while they charge only 25 cents for it. I think I can remember the time when this Corbett did make quite a sensation by hatching chickens under a pile of manure, around at different fairs or poultry conventions.

For some time I have had in mind some plan by which sitting hens might be utilized. Not very far from my own poultry-yard I went into one belonging to a neighbor, and found three or four sitting hens "holding the fort," on different nests. When I remonstrated because these hens were not promptly shut up to break them of the habit, a young hopeful disclosed the fact that they had been doing that way almost *all summer*. Every night when they gathered the eggs the sitting hens were pushed out of the way, and allowed to go right back and sit on the nest all night, and so on. And that reminded me that, when I was in Northern Michigan, I saw a statement in a paper about how much money a bee-keeper's wife had received during the winter from a small flock of hens. I paid them a visit and stayed there over night. In the morning I asked permission to review the poultry-houses, and found out incidentally that they, too, were allowing sitting hens to occupy the nests week after week, and perhaps month after month, because nobody had time to shut them up and look after them; and my impression is that *thousands of dollars* are wasted every year in the United States by letting hens sit, you might say, pretty much all summer, without hatching any chickens or doing anybody any good.

How can we break up a sitting hen, and get her to laying on short notice? This $2.00 book that sells for 25 cents has one solution of the problem. Put your eggs into a manure incubator or any other kind of incubator, for that matter; and when they are pretty nearly ready to hatch, say six days or less before hatching, give fifteen or twenty of them to one of these tenacious, persistent sitters. It will do the business, for I have tried it. Some of you may remember that I gave an incubatorful of chickens to a hen that had been wanting to sit only about one day. She cared for the chickens all right, and lost scarcely one of them. Now, this is one way of getting a sitting hen into the harness and doing something; and if you happen to have a sitting hen on hand you can make her take the place of a brooder—that is, in the summer time or in a warm climate.

There are several other valuable and interesting points in this $2.00 book that sells for 25 cents; and I do not know but it will pay you to send 25 cents to Montgomery Ward & Co. and get it. It seems a little funny that a book that made such a great stir in the world years ago has dropped out of sight entirely, and nobody seems to know any thing about it now. I wonder if some of the great secrets and systems of the present day may not be lost and forgotten in a short time.

By the way, friends, a *lot* of these poultry secrets have no date on them. Yes, many of the catalogs of poultrymen are without date. In our own printing-office I have repeatedly declared that every thing that comes off from our presses must have some date to tell when it was written and printed. The great throng of humanity that is now "wanting to know" has a good honest right to demand when and *where* such wonderful things were studied out and given to the world—especially the *when*. Who wants to waste time on some document without knowing whether it is one year old or forty?

The way in which you get $500 for the product of twelve hens is to set every egg, as fast as laid, in the stable-manure incubator. If the twelve hens lay, say, 150 eggs apiece, and you have good luck with your stable-manure hatcher, you ought to have about 1200 chickens at the end of the season. And it will not be a difficult matter to get $500 for them, even if you rear only common stock. But I think one of our modern incubators would be found a much better investment than the manure-pile arrangement. When I was about ten years old I remember getting a book out of our Sunday-school library that told about hatching chickens successfully with the heat of fermenting manure; so there is no question but that it *can* be done. But practical demonstration has shown that the amount of supervision required *is very much more* than is needed with the modern incubator.

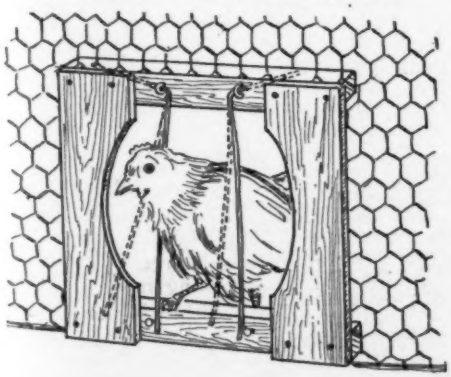
HOW TO TELL WHETHER EGGS ARE GOING TO HATCH; SEE PAGE 450 OF OUR LAST ISSUE.

I have lost a good many chickens myself, and I suppose others have lost thousands, by taking it for granted that the eggs were not good on the 22d or 23d day of incubation. I read of a man who dumped out on the compost-heap an incubatorful of eggs, thinking there was no use of waiting any longer; when, had he been a little patient, and used common sense, he might have had a good hatch. For instance, a hen with a dozen eggs had not hatched a chicken on the 23d

day. With my egg-tester I was enabled to see that every egg contained a live chicken. It needs some practice to enable one to do this. Fix your eye on the air-bubble (in the egg-tester described, of course); and if you watch long enough you will see a shadowy movement where the chicken pushes up into that air-bubble. As soon as you satisfy yourself that the chicken is alive, take the next egg, and so on. My twelve eggs were due to hatch on Tuesday, but not a chick came out till Saturday, and then we found eleven nice chicks from the dozen eggs. The principal reason I can think of for accounting for this delay in hatching was that the hen did not seem to have sense enough to roll the eggs around and keep them under her feathers. She was off from her nest more than hens generally are. In fact, she was a sort of slipshod mother, and preferred to be gadding about rather than attending to business. I put a little yard around her nest so she could not get very far away, but she was out in her yard a good part of the time. Now, here is another fact: Good healthy eggs strongly fertile will stand a big lot of neglect aside from variations in temperature. Perhaps it is better to have an incubator that keeps right at 103; but I am pretty well satisfied that the average hen does not do that nor come anywhere near it. Who knows but that we shall eventually not only catch up with the sitting hen, but beat her "at her own game"? A friend of mine has just come from the Panama canal, and he says that modern sanitation has been the means of making one of the most unhealthful spots on the face of the earth pretty nearly a modern health resort. One can live there, and be well and strong, as well as in most northern localities. If science and skill can do that, can't we hatch eggs *as well* as a sitting hen?

A. I. ROOT'S "BEE-ESCAPE" FOR CHICKENS.

The picture below makes it so plain that hardly any explanation will be needed.



THE "TRAP" THAT WILL LET THE FOWLS GET INTO THE YARD BUT WILL NOT LET THEM GET OUT.

The materials for this trap are two thin pieces of soft pine. I say *soft pine* so that you can readily whittle out the curves. These pieces may be 10 inches long, and 2½ or 3 wide. Then you want two sticks, about an inch square and 8 or 9 inches long. Nail them together so that the width of the circle where the hens pass through will be 6 or 7 inches. This space of 6 inches wide will let a Leghorn hen through all right. The swinging wires should be tinned, and large enough so that the hen can not bend or spring them easily when she wants to go through the opposite way. These wires are bent L-shaped, or a little more than square at the corners. The long arms should be curved a little where the hen goes through, so as to indicate where they are to push between the two wires. Now drive a couple of staples about 2 inches apart in the upper stick, and here comes in *my* invention. If these wires moved out squarely, like the lid of a box, a hen could get through without much trouble either way. But we want them so as to spread apart as shown at the dotted line. To do this, take an ordinary twist drill, and drill diagonally into the upper stick. Push the short end of the wires into these drill-holes, and, if drilled rightly, as each wire is raised it swings off out of the hen's way, and allows her to go through easily. After she passes out the wires drop back, just clearing the nails partly driven into the bottom stick. Now, when the fowl attempts to get back through the trap the way she came in, the lower ends of the wires spring under the nail heads as you see. It is almost laughable to see the hens go up and crowd with their shoulders against the wires. After a while, however, they seem to "catch on" to the fact that this "golden gate," like death, lets people *out* of the world but never lets them get back into it.

TEMPERANCE.

TEMPERANCE—DOES IT EVER DAMAGE A TOWN OR CITY FINANCIALLY BY MAKING IT DRY?

When I first thought of making a winter home in Florida I selected Fort Myers, Lee Co.; but on being told that it was a saloon town and county I decided on Manatee Co. Recently, however, Fort Myers has been voted dry, and here is what the mayor reports in regard to the result:

From July 1, 1907, to July 1, 1908, there came before him as mayor 136 men on charges of being drunk. From June 1, 1908, to June 30, 1909, the number was 38. These figures, he states, will be borne out by the records of the mayor's court, and are certainly a good showing for the "dry" side of the question. Again he says, the money derived from the $3.00 street tax amounted to $900, which is nearly $300 more than would have been derived from the saloons. You can draw your own conclusions as to whether or not the making of the city "dry" has done damage financially or morally.—*Ft. Myers Press.*

With such testimony as the above, is it not ridiculous to claim that saloons ever *help business?* Almost, if not *all* the towns and cities in Ohio that have been made dry can furnish a similar report; and for that matter

I might as well say every town and city in the whole United States. What do you think about it friends?

HIGH-PRESSURE GARDENING

By A. I. ROOT

TURNIPS, RAPE, CRIMSON CLOVER, ETC.; SOWING IT AMONG THE CORN AT THE LAST CULTIVATING.

After what was said in our last issue about cowhorn turnips and rape for honey in the spring, I find the following in the *Rural New-Yorker:*

SEEDING "CATCH CROPS" IN CORN.

I wish to sow for cover crop in corn some rape, cowhorn turnips, and rye. Can you tell me the proportion of each for one acre? Would it be good policy to sow the same for cover crop where I take off potatoes in August?

RHODE ISLAND SUBSCRIBER.

After many experiments in Northern New Jersey we advise the following combination for a catch crop in the corn: 12 lbs. of crimson clover; 1 lb. of dwarf Essex rape; 1½ lbs. of cowhorn turnips for each acre. This is seeded at the last working of the corn, which with us comes in early August. We mix the seeds and scatter them over the ground among the corn. Then with a light cultivator open wide we run through the rows. It is better to work both ways if possible. A piece of plank wired to the cultivator so that it will drag on the ground behind will scrape the soil down smooth and give a better seeding. We have tried the experiment of seeding a peck of rye in addition to the other seeds. In places where crimson clover is not a sure crop the rye helps, for it will live and give a green crop for plowing under in the spring. We would use the clover, however, even though we knew it would all be killed during winter and spring, because the growth it will make through the fall, before the ground freezes, will more than pay for seed and labor. It is doubtful whether this clover will live through the winter in Rhode Island. If it were not to be used we would sow to each acre 1½ lbs. each of rape and cowhorn turnips and half a bushel of rye.

The reason I recommended cowhorn turnips is because they go away down in the ground, and pump moisture and fertility to enable them to get sufficient growth to stand over winter in many localities. I did not think at the time of seven-top-turnip or crimson clover; but this, I think, would make an excellent combination for the bee-keeper. In our locality we have never failed with crimson clover when put on good ground in August. It always stands wintering. Now, by using crimson clover, rape, and turnip, all three, we should have three chances for honey, and it is hardly likely that all of them would fail. All three are valuable for feed for all kinds of stock, and they are splendid for turning under to enrich the soil. Another thing, this combination prevents wash during winter; and it seems to me that all high-pressure farming and gardening should have some growing crop that will stand the winter on every foot of land. Now is the time to get right at it. As soon as any crop is taken off so as to leave bare ground, get in one or all of these three. If you have had no experience in the way of green manuring, just try a little plot in your garden first; and while I am about it there is still another plant—one that will stand the winter more surely than any thing else I know of unless it is rye—the seven-top turnip that we have advertised in our seed catlog for so many years. This plant does not make a turnip at all. It is grown simply for the top for feed, and for turning under, for bees and for seed.

We see by the *Columbia State* (South Carolina) that our old friend J. D. Fooshe, of Coronaca, S. C., has, during the past season, sold *9000 lbs.* of this seven-top-turnip seed. Some of the older readers of GLEANINGS will remember friend Fooshe as one of the pioneers in queen-breeding. He has furnished The A. I. Root Co. queens for more than thirty years, and we have never had a complaint of them, and we do not know that he has ever complained of us. I wish he would tell us about how much honey he got from his seven-top turnip in growing that 9000 lbs. of seed, and any thing else he may have to suggest from his long experience in growing seven-top turnip.

ELECTRICITY VERSUS THE HORSE.

I have before mentioned the fact that, when I was but little more than a dozen years old, my great hobby was electricity; and when I was seventeen I was going around to schoolhouses giving experiments in electricity and chemistry. During those boyish "lectures" I informed the good people that electricity was destined to take the place of steam very soon; but when I made that prediction it did not occur to me, or I do not think the thought entered my boyish head, that I should live to see the day when electricity would, to some extent, take the place of the *horse,* to carry people along the streets and over the country. Well, for the first time in my life, during this beautiful month of May Mrs. Root and I have enjoyed riding around town in an electric carriage, a little one of our own. Electric carriages are nothing new, I am well aware. In fact, the one I am using was purchased by Mr. Calvert six or seven years ago. It was a $1000 carriage originally, but I think he got it for about $200; and another son-in-law, Mr. L. W. Boyden, has recently purchased a beautiful electric auto that looked almost new, for only $200, that must have cost at first toward $1000. The reason these were offered at such a sacrifice is the expense of storing and maintenance of the batteries, where one has no storage-plant of his own. The expense of renewing the storage batteries when they are used up, either by excessive use or bad management, is very heavy. One more reason why electricity can not take the place of gasoline is the great weight of the batteries—something near half a ton—in order to have power enough to run over ordinary country roads. It is estimated that, when the batteries are full, they are good for about forty miles; but if a shower comes up and the roads get muddy, you may use up the stored-up power in running only twenty miles, or perhaps only half that. This is the main reason why gasoline has taken

the place of electricity unless it is to run about towns and cities where there are paved streets.

I think Mr. Calvert used the machine I have some two or three years. Then he sold it to another son-in-law, Mr. A. L. Boyden, who used it three or four years. During the past winter it has been used by our mail-boy to run back and forth between here and the postoffice, a distance of half a mile. When I returned from Florida the mail service had been so severe on it that we concluded it was about used up; but as our automobile is away down in Florida I decided to have this one fixed up, and for the first time in my life run an *electric* carriage.

I have just been telling you some of the faults of the electric machine, and now I will mention some of its good points. First, it is the stillest automobile in existence so far. On this account you will have to look out about running into people, as they can not hear you coming. Second, it is easier to manipulate than any other machine. Just push on one lever, and off you go. If you wish to go faster, put on another notch; and to go still faster, push the lever clear up. When you want to go slower, or stop, just pull the same lever back. That is all there is to do. If you are out after sundown, and it begins to get dark, just turn a button, and two beautiful electric-light globes shed light on your pathway. If you have an electric-power plant of your own, as we have here, just attach two wires when your machine is standing still, and it will always be charged when you are ready to use it. With an electric plant of your own, the expense of the electric current for storing the batteries need not exceed a cent a mile when the batteries are new. When they are old the expense may run up to ten cents. Any woman, or any boy or girl big enough to drive a horse, can run the electric. If properly used, I think a set of batteries should run the machine several thousand miles. But when the batteries are used up by bad management or many miles of use it will cost something over $100 to renew them. They can many times be repaired and fixed up temporarily for a small part of this sum.

SKUNKS, HAWKS, OWLS, ETC.; ARE THEY ALL ENEMIES OF THE POULTRY INDUSTRY?

Mr. Root:—We greatly appreciate your department in GLEANINGS, and feel glad indeed that one periodical of influence devoted to agricultural interests does not hesitate to expose frauds, and to assist in the warfare against intemperance.

I can not refrain, however, from calling your attention to the fact that, perhaps, you are unthinkingly causing injury by your occasional careless remarks about the creatures which you call "varmints." I have all my life been very much interested in the study of our wild life, and have often done so, perhaps, at the cost of neglecting work that needed to be done; and it pains me to hear men speak of some of our most valuable friends as "varmints." You will, no doubt, be surprised to hear that of the thirty or more kinds of hawks in America only about four are a menace to poultry; yet the average person will shoot every hawk he sees, without a question as to its possible value. Of the owls, only one of the more than 24 kinds is destructive to poultry, yet the rest get no consideration for the good they do. Skunks, as we all know, are sometimes troublesome to poultry; yet we who have investigated the matter know that it is the individual which has formed the habit, and not the whole lot of skunks, that should be destroyed. When we see one man compelling the Chinese to sit idly by while their children are defiled by the American Tobacco Co. and its cigarettes, can we blame them for thinking that all Americans are bad, including the missionary who is sacrificing every thing to do them good? It is the individual with bad habits that has brought all the race of hawks, owls, skunks, and weasels into disrepute; and it is high time that our people were educated as to the great value of these creatures. I should like to say more, but think it is only necessary to call your attention to the matter, and suggest that you send to the Department of Agriculture for two free publications that will throw a lot of light on the matter—"Hawks and Owls as they Affect the Farmer," and "The Mouse Plague in Nevada."

I sincerely hope that I may have the pleasure of meeting you at some time, and it will double the pleasure if I ever have the opportunity of delivering my lecture, "The Plan of Eden," in your hearing.

Atlantic, Iowa. FRANK C. PELLETT.

Thank you, friend P. I have seen the government bulletin in regard to hawks; but I supposed that *all* skunks were addicted to robbing hens' nests and killing the little chickens; and I am very glad to know that owls are not *all* bad. Now, the question is, how are we to know which to kill and which to let alone or encourage? The particular skunk that gathers the eggs and catches little chickens if they are not penned up every night, I suppose had better be killed. This reminds me that every little while we hear of chickens that have learned to gobble up worker bees. But this so seldom happens that I believe no one thinks of keeping poultry away from the hives. I suppose rats and mice do more harm, on the average, than owls or hawks. The trouble is, as I have already said, to have the poultry-keeper or bee-keeper sufficiently well posted to know *what* to shoot and what not to shoot. Perhaps I should tell our readers that, accompanying the above kind letter, was a leaflet which gave an extract from the lecture referred to, as follows:

EXTRACT FROM THE LECTURE.

"Perhaps, if you are a farmer, your crop of red-clover seed was a failure last fall; yet you never thought of laying the blame on the new gun you gave your boy on his birthday, but it is not an unreasonable conclusion. In a hollow tree near that field lived an owl that patrolled it every night in search of voles, or short-tailed field-mice; a hawk that also lived near by did the same by day, thus effectively keeping the voles in check. The boy, however, soon killed both birds, and the voles increased and multiplied without hindrance. They are very prolific little creatures, increasing continuously throughout about ten months of the year, and the first litter of the season will have grandchildren by fall. 'But,' you may say, 'what has that to do with my crop of clover seed?" Simply this: The voles are enemies of the bumble-bees, and destroy their combs, and, thus, the bees. Without the assistance of the bumble-bees in pollinating the blossoms, your clover will produce no seed, so there you have it."

I must confess that I never heard of "voles" before; but I do know that field mice do a great amount of damage; and while we have reports from newspapers almost continually of casualties resulting from giving guns to boys, I for one would keep the guns away from the boy until he gets to be a rather old boy. By all means let us get posted and keep posted—at least enough so that we shall not make the blunder of mistaking our best friends for foes.

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Save the money you pay the harness man by using **Myers' Lock Stitch Awl.** It stitches both sides like a sewing machine and mends harness, saddles, shoes, fur coats, robes, canvas, gloves, carpets, etc., perfectly. Something constantly needed, always ready for use and one of the handiest tools imaginable. Price prepaid only $1.00. Booklet C Free. Write today, Agents Wanted.

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Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

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A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

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$50 to $300 SAVED

We are manufacturers, not merchants. Save dealers, jobbers and catalog house profit. I'll save you from $50 to $300 on my High Grade Standard Gasoline Engines from 2 to 22-H.-P.—Price direct to you lower than dealers or jobbers have to pay for similar engines in carload lots for spot cash.

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Price and quality speak for themselves and you are to be the sole judge. Sell your poorest horse and buy a

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Wm. Galloway Co.
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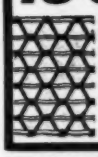
15 Cents a Rod



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FACTORY PRICES *Do not buy* a bicycle or a pair of tires from *anyone* at *any price* until you write for our large **Art Catalog** and learn our *wonderful proposition* on first sample bicycle going to your town.

RIDER AGENTS everywhere are making big money exhibiting and selling our bicycles. **We Sell** cheaper than any other factory **Tires, Coaster-Brakes,** single wheels, parts, repairs and sundries at *half usual prices.* **Do Not Wait;** write *today* for our *liberal offer.*

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For the price of a good horse you can buy an ideal farm engine that will operate Feed Grinder, Cutter, Saw, Pump, Churn, Separator, Washing Machine and other machines to which belt can be attached. It eats no corn, does not get sick or die, can be moved whenever you wish, is always ready and eager to work.

A Star Gasoline Engine will cut out drudgery, save the tired back, and make life a pleasure. Made with standard tank, pump cooled, or hopper cooled.

Send for prices and illustrations and learn why the "Star" is a money-maker and time saver.

The Star Manufacturing Co.,
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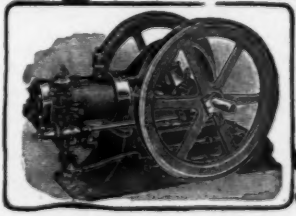

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A Heavy, Standard High-Grade Gasoline Engine